Tikal Reports, Numbers 1-11

Edwin M. Shook, William R. Coe, Robert F. Carr

Published by University of Pennsylvania Press

Shook, Edwin M., et al.
Tikal Reports, Numbers 1-11: Facsimile Reissue of Original Reports Published 1958-1961.
University of Pennsylvania Press, 2014.
Project MUSE.muse.jhu.edu/book/28956.

TIKAL REPORTS

NUMBERS 1–11

UNIVERSITY MUSEUM MONOGRAPH 64

TIKAL REPORTS

NUMBERS 1–11

Facsimile Reissue of Original Reports
Published 1958–1961

Published by
THE UNIVERSITY MUSEUM
University of Pennsylvania
1986

Library of Congress Cataloging-in-Publication Data

Main entry under title:
Tikal reports, numbers 1–11

(University Museum monograph; 64)
Reprint. Originally published 1958–1961.
Includes bibliographies.
1. Tikal Site (Guatemala) I. Title.
F1435.1.T5T53 1986 972.81'2 85-20988
ISBN 0-934718-07-5 (set)
ISBN 0-934718-74-1

Facsimile Reissue of Original Reports Published as:

Tikal Reports Nos. 1–4, Museum Monograph No. 15, 1958. ISBN 0-934718-08-3
Tikal Reports Nos. 5–10, Museum Monograph No. 20, 1961. ISBN 0-934718-12-1
Tikal Reports No. 11, Museum Monograph No. 21, 1961. ISBN 0-934718-13-X

REPORTS

1. FIELD DIRECTOR'S REPORT: THE 1956 AND 1957 SEASONS
Edwin M. Shook

2. EXCAVATIONS IN THE STELA 23 GROUP
William R. Coe and Vivian L. Broman

3. THE PROBLEM OF ABNORMAL STELA PLACEMENTS AT TIKAL AND ELSEWHERE
Linton Satterthwaite

4. FIVE NEWLY DISCOVERED CARVED MONUMENTS AT TIKAL AND NEW DATA ON FOUR OTHERS
Linton Satterthwaite

5. TIKAL: NUMERATION, TERMINOLOGY, AND OBJECTIVES
Edwin M. Shook and William R. Coe

6. THE CARVED WOODEN LINTELS OF TIKAL
William R. Coe, Edwin M. Shook and Linton Satterthwaite

7. TEMPLE I (STR. 5D-1): POST-CONSTRUCTIONAL ACTIVITIES
Richard E. W. Adams and Aubrey S. Trik

8. MISCELLANEOUS INVESTIGATIONS: EXCAVATION NEAR FRAGMENT 1 OF STELA 17, WITH OBSERVATIONS ON STELA P34 AND MISCELLANEOUS STONE 25; EXCAVATION OF STELA 25, FRAGMENT 1; EXCAVATION OF STELA 27; EXCAVATION OF STELA 28, FRAGMENT 1
Linton Satterthwaite, Vivian L. Broman and William A. Haviland

9. THE MOUNDS AND MONUMENTS OF XUTILHA, PETEN, GUATEMALA
Linton Satterthwaite

10. THE ABANDONMENT OF PRIMICIAS BY ITZA OF SAN JOSE, GUATEMALA, AND SOCOTZ, BRITISH HONDURAS
Ruben E. Reina

11. MAP OF THE RUINS OF TIKAL, EL PETEN, GUATEMALA
Robert F. Carr and James E. Hazard

MUSEUM MONOGRAPHS

TIKAL REPORTS—NUMBERS 1-4

By

EDWIN M. SHOOK

WILLIAM R. COE and VIVIAN L. BROMAN

LINTON SATTERTHWAITE

PUBLISHED BY

THE UNIVERSITY MUSEUM

UNIVERSITY OF PENNSYLVANIA

PHILADELPHIA

1958

FOREWORD

The papers contained in this volume represent the first of a series of technical reports on the University Museum's archaeological project at Tikal. They cover the work of the second field season under the direction of Edwin M. Shook. The first season, in 1956, was devoted to camp construction, clearing, trail cutting, and preliminary exploration.

An archaeological project of the magnitude of that we are undertaking at Tikal is beyond the means of most institutions without the cooperation and support of a large number of organizations and individuals. We have been extremely fortunate in this respect and herewith most gratefully acknowledge the contributions of both money and services that have made the project possible. We are particularly indebted to the Government of Guatemala for its cooperation and especially for air transport of personnel and equipment from the capital. The late President, Carlos Castillo Armas, and his successor Miguel Idigoras Fuentes have given the project complete and enthusiastic support. Carlos Samayoa C., Director of the Institute of Anthropology and History, Antonio Tejeda, Director of the National Museum of Archaeology and History, Lic. Adolfo Molina Orantes, and Colonel Ramiro Gereda Asturias have been particularly helpful.

To two great Foundations, the American Philosophical Society and the Rockefeller Foundation, we are most grateful for financial support, as we are to the United Fruit Co. for substantial aid in the transportation of supplies, and to the Carnegie Institution of Washington for a field library and much valuable equipment.

A great deal of material assistance was received from firms engaged in exploring for oil in the region around Tikal. We are especially indebted to Esso Standard (Guatemala), Inc., the Petty Geophysical Exploration Co., the Signal Oil Co., the Union Oil Co., and the Aero Service Corp.

Finally, we wish to thank those who wish to remain anonymous and the following individuals in both Guatemala and the United States whose most generous contributions, whether of money, time, energy, or of all three, have meant so much to the success of the project so far:

Dr. Fernando Aldana
The Honorable Norman Armour
Mr. Brandon Barringer
The Honorable and Mrs. John Biggs, Jr.
The Honorable Spruille Braden
Mr. Orville Bullitt
Sr. Carlos Castañeda M.
Mrs. W. G. Chard
Mrs. Martha Randolph Daura
Sr. Inocencio del Busto R.
Mr. and Mrs. John Dimick
Mr. and Mrs. Samuel B. Eckert
Sr. Victor Gonzalez
Mr. George F. Guillemin

Mr. Arnold D. Hayter
Sr. Jorge Ibarra
Mr. Philip T. Leonard
Mrs. Malcolm Lloyd
Mr. and Mrs. Percy C. Madeira
Mr. James P. Magill
Mrs. Josiah Marvel
Mr. and Mrs. Weld Morgan
Mr. Bert Noble
Sr. Luis C. Pagliara
Mr. and Mrs. J. F. Reni
Mrs. E. Florens Rivinus
Sr. Atahualpa Ruiz
Mr. and Mrs. Alan M. Scaife
Mr. Philip T. Sharples
Mr. Cloyd Smith
Mr. Lawrence M. C. Smith
Col. Truman Smith
Mr. Frank B. Smythe
Mrs. K. A. Swanstrom
Mr. William Taillon
Mr. John E. Toulmin
Mr. William L. Van Alen
Mr. John C. White
Mrs. Alice Willcox

Philadelphia
June, 1958

FROELICH RAINEY

CONTENTS

Page

FOREWORD iii

Froelich Rainey

REPORT NO. 1 1

FIELD DIRECTOR'S REPORT: THE 1956 AND 1957 SEASONS

Edwin M. Shook

REPORT NO. 2 23

EXCAVATIONS IN THE STELA 23 GROUP

William R. Coe and Vivian L. Broman

REPORT NO. 3 61

THE PROBLEM OF ABNORMAL STELA PLACEMENTS AT TIKAL AND ELSEWHERE

Linton Satterthwaite

REPORT NO. 4 85

FIVE NEWLY DISCOVERED CARVED MONUMENTS AT TIKAL AND NEW DATA ON FOUR OTHERS

Linton Satterthwaite

TIKAL REPORT NO. 1

FIELD DIRECTOR'S REPORT: THE 1956 AND 1957 SEASONS

Edwin M. Shook

CONTENTS

Page

INTRODUCTION 5

Objectives 6

Prior investigations 7

Publication 8

THE 1956 SEASON 9

Monuments 9

Twin-pyramid complex 9

Miscellaneous results 11

THE 1957 SEASON 12

Site map 12

Monuments 13

Lintels 14

Graffiti 16

Excavations 16

Stela 23 group 16

Stela 24 15

Stela 25 17

Group H 17

Group E 17

Miscellaneous results 18

Discussion 18

REFERENCES 21

INTRODUCTION

This short Report inaugurates a series of technical papers on the University Museum's long-term archaeological campaign at the famous Maya site of Tikal, Guatemala.

Tikal lies at the heart of the Maya area in northeastern Peten. It is the largest Maya site known, if not in extent, certainly in architectural mass and height of temples. Thus, as has often been stated, it appears to have been one of the most important centers in the entire area. It is therefore reasonable to believe that Tikal's significance in the development of lowland Maya culture was commensurate with its size, and that extensive excavation should repay, in knowledge of that culture, the very heavy costs involved. This is one of the reasonable expectations that led the Museum to undertake such a long range, arduous, and expensive project. Another is that a site of such size and importance might well be expected to have exerted dynamic leadership over a considerable territory and to have been a prime source of internal innovation. Tikal has traditionally been regarded as a powerful and influential center, particularly in architecture. We intend to test this belief and to try to determine whether it was a center of innovation in other respects as well.

Standing as it does in the center of a vast area full of obviously related sites, Tikal may be supposed to have outstripped them all in population, strength of religious hierarchies, and, perhaps, in regional political influence and even control. An attempt to determine whether this is so is basic to the problem of the determination of the nature of lowland Maya socio-political structure and its apparently sudden collapse at the end of the Classic period. In the process we also hope to determine the nature and strength of outside influences that must have affected Tikal to greater or lesser degree.

Since we are interested in origins as well as in overall growth of Maya culture, Tikal can also be reasonably expected to eventually produce considerably more information than we now possess on the early, pre-Classic phases from which it is supposed that Classic Maya grew.

As a result of work at a number of sites in the Peten—British Honduras region, notably Uaxactun and Holmul, a number of less broad but equally baffling problems have been posed. Some of these have been indicated below, and others may be expected to appear.

In summary, it seems to us that Tikal should be the ideal site to provide the time depth, the range of buildings from huge temples to simple dwellings, the burials and tombs, the caches, and, of utmost importance, the inscriptions and materials for C-14 dating, needed to furnish the very considerable body of evidence bearing on the many problems to be faced.

If we are to interpret successfully the growth and decline of Maya civilization at Tikal, we shall need more than archaeological evidence alone. Any study that can amplify our knowledge of the physical environment—climate, geology, flora and fauna—will be most welcome. We have repeatedly stressed our interest in cooperating in such studies; several have already begun. It is evident,

however, that it will take joint effort of both archaeologists and natural scientists to recast their specialized data for broadly interpretive historical purposes. Their separate reports can too easily be so exclusive as to be almost mutually worthless.

OBJECTIVES

Our more specific archaeological objectives are varied. One primary aim of the project is the investigation of the relationship of site size to change—resistance or receptivity to innovation—and to strength as a source of diffusion. This long-range goal involves a test of our expectations that Tikal should prove to have at once exerted leadership and to have been receptive to influences from elsewhere.

Without question, one major interest is the origin, development, and substance of Classic Maya ceremonialism in this area. We see the products of this ceremonialism and we recognize them as belonging at the apogee of New World cultural achievement. But it is actually this ceremonialism, the ritual complex developed by a relatively small hierarchy, that is the cause of our appreciation. Tikal—in its monuments, palaces, lintels, ball-courts, temples, caches, causeways, reservoirs—is a prime manifestation of Classic ceremonialism. It is imperative to know more of its sources which are assumed to derive from the lowland pre-Classic period. Too little is known of the pre-Classic Mamon and subsequent Chicanel phases. The "proto-Classic" Matzanel phase, evident at Holmul and Uaxactun, decidedly needs greater investigation. Our present knowledge of the pre-Classic of Tikal, with excavation only started, is confined to a few Chicanel sherds. If the later size of Tikal is indicative, pre-Classic remains here may be expected in sufficient quantity to permit solid conclusions as to the source of Classic Maya lowland culture. A highland derivation for it is a theoretical possibility, but this important problem of origin can be answered only through excavation, not by further arm-chair cogitation.

A distinct break in inscriptions occurs throughout the lowlands between Early and Late Classic times. The reason for this marked but variable hiatus is unknown. It occurs at Tikal and is of rather long duration (see Satterthwaite, 1958a). To encounter positive evidence of this hiatus, beyond monuments themselves, would be a valuable discovery. The question of Early to Late Classic transition is a serious one. There are stylistic changes in sculpture, and at Uaxactun architecture changes, as do ceramics. May these not be superficial expressions of something more profound ? And, if so, may it not have been indicated at Tikal in as yet undetected forms equally as obvious as pottery, masonry, and sculptural style ? For example, we recognize a definite secular trend in Mesoamerica during Late Classic times. Such a trend may have been initiated by a revolt, ending the Early Classic period, against the authority exercised by the hierarchy. Since Tikal was a large and important center, both in Early and Late Classic times, any such events and trends might have been accentuated there.

Other natural interests include the architectural growth of the central portion of the site in terms of its periphery, the functions of the temples and palaces, the roles which peripheral ceremonial groups played locally and in relation to the central nucleus, the question of population size, permanency, and productivity, the structure of the sustaining area, the problems of water supplies, and so forth. From one point of view, the very size of the site may hinder work on these problems. But correct sampling, a necessity in even the smallest sites, should be productive along these lines. All are vital to any understanding of Tikal as a whole.

As important as the problem of origin and growth of a Classic Maya culture is that of why it eventually ceased. Again we propose that Tikal, because of its size and its implications, should correspondingly yield greater evidence of terminal events. We know that monuments, temples, and palaces failed to be erected after a certain date. The lack of stelae alone would indicate that the ceremonial complex developed by the hierarchy had collapsed as an integrated religio-governmental mechanism. The slightest bit of evidence, not only of the failure itself but of the reasons for it, would be of value.

Not to be lost sight of in these various interests is the important factor of the preservation of Tikal and the opening of the site to students, scientists, and the public. It is not easy to sit complacently, knowing that Temple III could shortly disintegrate. One major motive of the Project is consolidation,to preserve what remains. The Guatemalan Government realizes the uniqueness of Tikal as an archaeological monument and has therefore declared the site and an area of 576 square kilometers about it a National Park. With the full cooperation of the Government, the Tikal Project has done much to open up the site during the past two seasons, by building roads and clearing many structures of vegetation. This work has been justified by the increasing numbers of people who annually visit the site. The completion by the Government of the Tikal airfield in 1957 has been a definite factor in this tourism. In future seasons, considerable repair of the ancient structures and general clearing in the central part of the site are anticipated.

PRIOR INVESTIGATIONS

Morley (1937–38, *passim*) has summarized all work done at Tikal up to the time of his writing. Investigations were essentially of a reconnaissance nature, resulting in a great deal of information on architecture, inscriptions, and stone and wood sculptures. These valuable achievements were of course the work of Maudslay, Maler, Tozzer, and Morley himself.

Subsequent years saw the publication of the results of the Twentieth Central American Expedition of the Carnegie Institution of Washington (Shook, 1951), which had been briefly summarized also by Morley (1937–38, pp. 95–96). This visit, by H. E. D. Pollock, A. L. Smith, and the writer, resulted in discovery of a previously unreported group (Group H), two causeways, a ball-court, two sculptured stelae (19 and 20), a sculptured altar (Altar 8), five plain stelae (H1 to 5), six plain altars, and a large, artificially built reservoir. The writer, in 1942, revisited the site to secure data for Tatiana Proskouriakoff's reconstruction drawing of Temple II (Proskouriakoff, 1946). Later, in 1951 Antonio Ortiz made the impressive discovery of Group I which contains Temple VI, Stela 21, Altar 9, various plain monuments, and a large plaza. The enormous causeway between this group and Group A was also encountered (Berlin, 1951, 1953).

In the past Roman numerals have been used to distinguished the "Great Temples," and also as the numbers for carved altars. The latter are numbered in series apart from the stelae with which they are associated, without accompanying "geographical" Group letters. We have continued with this series, but use Arabic, rather than the awkward Roman numerals. We have, however, retained the Roman numerals for the Temples.

There is a fair number of excavations about monuments in Tikal for which we have very little information. It is known, for instance, that various carved stelae (e. g. 5, 10, 16) were excavated for their caches by General Eduardo Hay of the Mexican Boundary Commission party, and by the Englishmen, Jolly, Herron and Robson. Numerous plain stelae were also investigated by these groups.

Their results fortunately have not been entirely lost (see Coe and Broman, 1958 for summary). All caches dug prior to the work of the Project will eventually be brought into our listing.

It is also evident that in relatively recent years some unknown person excavated illegally below the floor of the rear room of Temple I. While clearing the floor this past season for lintel fragments, Coe found complete stingray spines with traces of red pigment. Projecting down into the rubble-packed pit were various soft wood poles. The red-painted spines suggest an elaborate burial; this should be checked by redigging in the area.

PUBLICATION

Tikal Reports Numbers 1 through 4 inaugurate a series of technical papers devoted to the archaeology of Tikal and to any other topics in which the Tikal Project may become interested. We plan to issue annually a group of such Reports covering the results of the preceding season. Here it is necessary to cover both the 1956 and the 1957 seasons.

Each group of reports will constitute an item in the "Museum Monographs Series," but the numbering of the individual Reports will be continuous. It is contemplated that the first number of any group of Reports will summarize the past season's work, to emphasize the problems and trends evident in the Project's work, and to synthesize the various individual papers that follow it in the publication. Normally the Reports will tend to be factual so as to provide the raw data for studies involving comparisons and synthesis in various fields of interest such as pottery, non-ceramic artifacts, monuments, architecture, caches, and burials. However, minor excursions on the interpretive level may appear in the Reports when they seem to contribute to an orderly development of the Project.

THE 1956 SEASON

This season, from January to May, had as its personnel the writer and Antonio Ortiz, foreman. Linton Satterthwaite was present during most of April, Peter Mack, assistant in February, and George Holton, photographer for three days at the beginning and a week at the end of the season. Also present throughout the season were the following naturalists from the University of Michigan: L. C. Stuart, I. J. Cantrell, and Paul Basch, with T. H. Hubbell spending the last two months in camp. The writer gratefully acknowledges the valuable assistance rendered by the Michigan scientists during the heavy trials of the first season in Tikal. The greater part of our time was devoted to building camp, well digging, bushing, and road building (Rainey, 1956). Despite these necessary operations, the season had certain important archaeological results.

MONUMENTS

One result was the discovery of the magnificent Late Classic monument, Stela 22, its associated altar (Altar 10), and the surrounding masonry "enclosure." The chronology of the inscription on the stela has been described by Satterthwaite (1956 and 1958b). It shows a period-ending date the equivalent of 9.17.0.0.0. Both the stela and the altar have yet to be adequately illustrated. We plan a complete photographic record of both of these and of each carved monument in Tikal. This in conjunction with casts from latex molds will allow extremely accurate and detailed line drawings to be made of each sculpture (see Satterthwaite, 1958b). When the record is complete, we will be able to treat comprehensively the aesthetic and evolutionary aspects of the local monuments. Re-examination by Satterthwaite (1956 and 1958b) of Stela 19 provided a sure period-end dedicatory date equivalent to 9.18.0.0.0. Its date had been in some doubt since its discovery in 1937 by the writer. Satterthwaite was able to relate the split halves of the associated altar (Altar 5); and a drawing of its carved top and side has been published (1956, Fig. 39). If a cache was ever present beneath the original position of the altar, it may well have been removed clandestinely.

TWIN-PYRAMID COMPLEX

More important perhaps than the new monuments and new data on old ones was recognition of the facts that they were elements in a unique assemblage which we term "Twin-pyramid complex," and that there were five such complexes. These were briefly referred to in Shook, 1957, pp. 45, 48, 49.

The term means that the most immediately recognizable feature is a pair of flat-topped pyramids facing each other from the east and west sides of a small to very sizable court. The pyramids of any complex appear to be identical in size and design, having stairways on all four sides; a temple building or "superstructure" was either absent or built entirely of perishable materials. There is always a group of plain stelae and altars before the eastern pyramid. On the south side of the court is a long masonry building with a low substructure. The building, judging from the amount of fallen

masonry, appears to have been vaulted. Opposite this building and centered on the north side of the court is what Maler called an "enclosure." This is a single, unusually large room formed of heavy masonry walls with one doorway in the center of the south wall. The masonry-walled building, we believe, rests on the court level, or possibly one step above it, and almost certainly had a palm-thatched roof. Centered in the room facing south through the doorway are a stela and an altar. In one case the monuments within the room are plain, like the stelae and altars before the eastern twin-pyramid; but in the other four cases both stela and altar are carved.

The following tabulation of dedicatory dates of stelae in enclosures of these complexes is based on that of Satterthwaite, 1956, p. 25:

Group	Enclosure	Monuments	Dedicatory Date
D	Structure 72	Stela 16 / Altar 5	9.14. 0. 0. 0
E	Structure 86	Stela E1 / Altar E1	(not carved)
H	Structure 95	Stela 20 / Altar 8	9.16. 0. 0. 0
E	(unnumbered)	Stela 22 / Altar 10	9.17. 0. 0. 0
E	Structure 81	Stela 19 / Altar 6	9.18. 0. 0. 0

There seems to be no reason to doubt that each entire twin-pyramid complex was a "katun-marker" –not merely the carved stela and altar in the north building. If this inference is true, a very large number of the 68 plain stelae of Tikal are dated as belonging in the Late Classic period. Detailed studies of their sizes and shapes, combined with stratigraphic data elsewhere, may make it possible to identify other plain stelae as pertaining to the early or late period.

The placement of stelae within buildings, though it occurs occasionally, is not a common practice in the Maya area. Such unusual placement of stelae, in combination with twin pyramids and with plain stelae and altars at the bases of the east pyramid and the south building, forms a unique architectural arrangement. Obviously this remarkable assemblage is an important Tikal feature and warrants investigation. A modest beginning was made in the 1957 season (see below). The excavation of each unit of any one complex will be a large undertaking and ultimately will require synthesis of buildings and monuments. We would like to know the antecedents of the pattern, and believe that the Stela 16 complex, seemingly the oldest, may be productive in this regard. The pattern remains basically the same from the earliest to the latest example. It presumably reflects a special ceremonial function that may well be unique also to Tikal. The role that the now plain monuments played is another problem, as are their differing numbers from complex to complex. Does each complex represent a single period of construction? Why does the sequence of these complexes start at Group D, perhaps then pass to Group E (west), then surely to Group H, and then back to Group E, first to the east and finally in the center of the group? The apparent use of perishable roofs (on the "enclosures"), and perishable temples, if any were used, on each pyramid in Late Classic times is of great interest. Our viewpoint may be ethnocentric, but we are amazed that these most impressively carved monuments, marking intervals of twenty Maya tuns, were in effect lost in the gloom of their "enclosures." The only light entered from the south doorway, so that the delicate carving was never seen in strong natural cross-light.

MISCELLANEOUS RESULTS

The five twin-pyramid groups provide ten pyramids, each with four stairways and no masonry buildings. This type of flat-topped pyramid was called "sepulchral" by Maler. He classed Str. 66 as of this type and as such it appears on the Tozzer and Morley maps. We have briefly examined Str. 66 and find it much larger than any of the twin pyramids. There is no convincing evidence of more than one stairway, and the pyramid top is flat but not square. Also, Str. 66 stands alone in the middle of a large court with none of the features of a twin-pyramid complex.

General exploration of the central area of ruins resulted in the recognition of another ball-court at the north end of Group C, and of three more artificial reservoirs. An effort was made to determine the limits of Tikal by exploring the environs. Ruins of house sites and small groups of vaulted temple and palace buildings continued in each direction from the central area as far as we searched. This led to the arbitrary selection of a square area two kilometers north, east, south, and west of the main plaza of Tikal, or a total of sixteen square kilometers to be mapped in detail.

THE 1957 SEASON

The staff consisted of the writer, William Coe and Vivian Broman as archaeologists; James Hazard, engineer; Walwin Barr, photographer; and Antonio Ortiz, foreman. Linton Satterthwaite was again with us for three weeks. The season ran from early January to early May. Considerable time was devoted to further bushing of the site, camp construction and unsuccessful drilling for water. Excavation and recording and surveying were very much emphasized and there are various important results to report.

SITE MAP

Our program of mapping, as previously mentioned, involves 16 square kilometers, of which one was completed this past season. J. O. Kilmartin of the U. S. Geological Survey arranged for Morris R. Jones to join us for one month in order to begin the map. Jones had had considerable experience with the difficult problems of mapping in dense vegetation at Mayapan. Hazard, Coe, and Broman were trained by Jones to continue the survey after his departure. The map is being done at 1:2000 with a one-meter contour interval. The transit supplements the plane table when necessary.

The square kilometer completed this past season covers the area about our camp which is located at the southwest end of the airfield. A great many mounds were located in this square. Many are presumed to be house-mounds. Isolated single mounds occur but, more frequently, small courts are encountered with mounds on two, three, or all four sides. Chultuns are fairly abundant and not infrequently are found on the small courts themselves. The mapped square covers uneven terrain, and high ground and especially ridges appear to have been understandably selected as construction sites. A considerable amount of ceremonial as well as expectable domestic architecture appears in the mapped square despite the fact that it is peripheral to the climactic portion of Tikal. Fair-sized palace and temple structures were found, verifying not only prior indications of the site's enormity but also the existence of dependent ceremonial units well away from the site nucleus. The same square also included bajo-type terrain. These swampy areas, with markedly different flora, showed no signs of construction; none would be expected in view of the terrain's seasonal flooding.

Traverses were made throughout the main central portion of the site, and plane-table maps of the twin-pyramid complexes of Stelae 16 and 22. The 1958 season should see continued progress in the central area. Here, in addition to the 1:2000-scale map, portions will be surveyed by transit on a larger scale because of the density of structures, stelae, and other features.

The Tikal map will be gridded in 500-meter squares. Each square will be designated in the system used by Kilmartin for Chichen Itza. An east-west line of squares bears an Arabic number, the north-south a capital letter. The result is Square 5H, Square 3D, and so forth. This will allow us to redesignate structures in a systematic manner, using the square and a hyphenated structure number; for instance, Structure 3H–45. Such a plan for a logical series of structure numbers accounts for the fact that the enclosure of Stela 22 is still unnumbered; we must know all the struc-

tures in the square before we can assign numbers. Those structures encountered last season in the completed square have been numbered in this new system. We are temporarily locating a particular feature within an incompletely surveyed square by designating its metric distance from the square's north and west co-ordinate, i. e., 3A S195 E260. But we do not see how to avoid use of Tozzer-Morley structure numbers until the areas covered by their maps have been covered by our own.

The problem of revision of designations is an important one, not peculiar to Tikal; Satterthwaite, for example, found it necessary to revise two previous systems of local designation in his work at Piedras Negras. We cannot avoid it here. We do not, however, expect that the tag "Temple I" will ever be forgotten, despite systematization. The problem of labeling structures is well illustrated by the "Temple of the Inscription," also known as Temple VI (Berlin, 1951, 1953). On discovery it was judged to be important enough to warrant a Romanized "temple" label, yet other temple structures (e. g., Strs. 27, 39, 90), equal or greater in size, are in a sense neglected in this subjective system.

MONUMENTS

The second season produced large top fragments of two new carved stelae (Stelae 23 and 25). In addition, the supposedly plain Stela D8, at base of Temple III with Altar 7, was found to be actually carved; it has been re-numbered Stela 24. Two new plain stelae and one altar were also found. The circumstances respecting the carved monuments are given below (pp. 16–17).

Satterthwaite worked on the chronology in the inscriptions of the new Stelae 23 and 25 and on that of the previously known Stela 12, fitting the fragments of the latter for the first time. His results are incorporated in Tikal Report No. 4. An important result of the new finds and their dedicatory dates is the raising of doubt that the famous Stela 10 with an 8-term "Initial Series" can be as late as Proskouriakoff's style-dating system led her to postulate. This is also given some attention in Report No. 4. Like Stela 10, Stelae 12, 23, and 25 show the unusual trait of high relief carving. The dedicatory dates of Stelae 12 and 25 were doubtless those of their Initial Series, 9.4.13.0.0. and 9.4.3.0.0 respectively, while that of Stela 23 was probably at a tun end not much later than its latest surviving date, which is at 9.3.16.8.4. The question is whether the usual 9.8.0.0.0 date for the beginning of the "Late Classic" period may not be too late, as the writer has stated before (Shook, 1951, p. 22).

The three 1957 readings of inscriptions on stelae, according to Satterthwaite, double the number of Tikal Lunar Series. They are all with early dates, a fact that is likely to be of theoretical advantage. It appears, for example, that the "Uniformity" moon-counting may have begun in Tikal in the Early Classic period. The new finds also supply various items of evidence for other unsolved or partially solved epigraphic problems. These are noted in Tikal Report No. 4. This same Report introduces certain innovations in the manner of recording and illustrating the inscriptions and the accompanying relief designs, and further provides a simplification of Morley's classification of stelae, which can be applied to altars also.

Maya monuments are important for their content of art and epigraphy as manifestations of hierarchic culture; and the contemporaneous or "dedicatory" dates are invaluable controls in dating artifacts, ceramics, burials, and architecture. Report No. 4 contains a critical review of all dedicatory dates at the site, suggesting that in certain cases dependence on style-dating is no longer

necessary, and that in others suggested epigraphic controls had best be considered very dubious.

Included also is a preliminary analysis of dimensions and proportions of all carved stelae at the site. Certain differences appear to be valid Early Tikal period indicators. This encourages us to believe that they may be used in relative dating of plain stelae, when combined with such stratigraphical controls as may be forthcoming, and with shape analysis.

LINTELS

The incomparable carved wooden Tikal lintels, the majority of which have long been known, were investigated in detail. Some are in place at the site, others in the Museum für Völkerkunde in Basel, and the American Museum of Natural History in New York and two pieces of a single beam are in the collections of the British Museum. Certain carved beams removed from the site many years ago cannot be located and are presumed to be lost. One obligation of the Project from the beginning has been to record completely the existing carved lintels and to settle the long-standing problem of their specific proveniences. We plan also to restore the beams, in replica, to their original positions. Beyond field work, study has been required in New York, London, and Basel. We are not as yet ready to publish results in full but intend to do so in this series of Tikal Reports. It would be well however to summarize here the findings of this last season.

Where, as in the Great Temples, one or two doorways may be ranged behind a single outer one, we number their lintels, with No. 1 for the outer one. This is the system of Morley (1937–38, I, p. 348). We also number the various beams comprising a single lintel in the same direction, from the outside in, using beam numbers for now missing ones in the sequence, as well as for those which are accounted for.

As to field work, Shook and Coe measured all lintels *in situ* and all impressions of removed lintels in Temples I, II, III and IV. It will be recalled that Temple V has a single doorway and that it is spanned by a still-present plain zapote lintel. Coe cleared all floors of Temples I and IV and the back room of III. In doing so, he recovered thousands of wood fragments. These stem from the evidently successful attempts by neighboring visitors in the 19th Century to remove the lintels and to reduce their weight by hacking off the backs and plain butts with axes and machetes. They not infrequently cut into the carved areas. These latter fragments were recovered and have permitted us, through study of photographs and the originals in London and Basel, to relate definitely a particular beam to one of the four temples. This narrowed possibilities, and measurements and study of the actual beams preserved enabled us to assign the lintels in Europe to their original doorway positions.

The remains of Lintel 2 of Temple I and Lintel 2 of Temple III, still in place, were meticulously cleaned and photographed and later drawn by Coe. Lintel 2 of Temple III has recently been published (Shook, 1957, Fig. 37) and a report by Coe of both lintels in greater detail will appear in the journal *Archaeology*. Through the kindness of Gordon Ekholm, Coe was permitted to photograph the surviving carved lintel of Structure 10, now in the American Museum of Natural History. We expect in time to complete and publish a line drawing of it. The writer, in the fall of 1957, visited London and Basel to secure latex molds and a complete set of negatives of the lintels in the respective museums. Mr. Adrian Digby of the British Museum and Dr. Alfred Bühler of the Museum für Völkerkunde generously devoted much of their time and that of their staffs to the successful accomplishment of these undertakings.

The lintels of Temple I may be summarized as follows. Lintel 1, across the outer doorway, consists of two plain beams and offers no problems. Lintel 2, originally comprising four beams, is carved, but only two of the four beams survive in place. The whereabouts of the missing beams (numbered 3 and 4, being the innermost of the four with respect to the temple and its doorway) is completely unknown. Lintel 3 was made up of five carved beams. Beam 1 (outer, west beam of lintel) consists of the two British Museum fragments (Maudslay, 1889–1902, Pl. 71, upper right and lower right)and a missing central section. A fragment fitting the collar of the dwarf (lower right of Maudslay's plate) was found in the floor debris. Beams 2 and 3 of this lintel are shown in his Plate 71, center, and are now in Basel, Switzerland. Many fragments belonging to the mutilated decoration below the depicted throne were found in excavating; a large fragment completing the nose of the jaguar was also found. Beam 4 is unknown. Beam 5 is now only partly known. Morley (1937–38, footnote 520, p. 349) describes the beam as evidently complete and lying on the temple floor. In 1957 we found about a third of a beam on the floor. It shows a panel corner so oriented that the beam could not come from Lintel 2, and, since Lintel 1 is plain, it must be from Lintel 3, forming its east edge (Beam 5). Furthermore, the surviving carving on the fragment relates to the bands beneath the throne. In summary, Temple I lacks two complete beams from Lintel 2, also one beam and part of another from Lintel 3.

Temple II, with three doorways, shows Lintel 3 with its six plain beams in place. Lintel 1 consisted of five beams which we presume to have been plain as were surely the outer lintels of Temples I, IV, and V. We doubt that any outer doorway among these temples had been spanned by a carved lintel. Lintel 2 was carved and composed of five beams. Fragments of two of these were found by Maler on the temple floor (Maler, 1911, Pl. 18, 2). The larger of the two beam fragments is preserved now in the American Museum of Natural History. The others, according to Morley, were lost prior to 1914. Thus, three carved beams are missing from this temple.

Temple III offers few problems. Lintel 1 is not in place and the front doorway is choked with fallen masonry. Its eight beams may have been plain in view of the doorway's exceptional width of 3.93 meters, and the fact that it is an outer doorway. Lintel 2 is complete with the exception of Beam 1 (Shook, 1957, Fig. 37), which appears to have been intentionally removed. The remainder of this beautiful lintel was severely mutilated in recent times.

The remaining lintels in Basel definitely belong in Temple IV. On the basis of measurements alone, it has long been realized that the great lintel of seven carved beams, now in the Museum für Völkerkunde, (Maudslay, 1889–1902, Pl. 77) could have come only from the third doorway, having formed Lintel 3. Lintel 1 of Temple IV is composed of six plain beams still in place. Lintel 2 is entirely missing from the temple. It consisted of six carved beams of which five were illustrated by Maudslay in his Plate 72. Morley (1937–38, pp. 352–54) broke Maudslay's apparently correct arrangement to place certain of these beams in Temple I. The sixth beam, forming the west side of the lintel, is shown in Maudslay's Plate 71 (far left beam). The writer, in Basel, was able to match reasonably this beam, when inverted, to the far right beam in Maudslay's Plate 72. Beam 6 is still incomplete, for it lacks about half its original width. This half contained the panel edge. All thirteen carved beams comprising Lintels 2 and 3 of Temple IV are thus wholly or partly present.

The summary of carved beams missing altogether from Temples I, II, III, and IV is: three each from Temples I and II; one from Temple III; none from Temple IV. Thus there is a total of seven missing beams. With the latex molds of the beams in Europe, we plan to make durable casts, attach these to the undersides of reinforced concrete beams and install them in their original positions over the temple doorways. This will be part of a large program of repair and solidification

throughout the central portion of the site.

GRAFFITI

The interiors of the better-preserved temples and palace buildings in Tikal bear a variety of random drawings. Most of these are old, having been incised on the lime plaster of the walls, vaults, door jambs, and floors, while a few were executed with bits of charcoal. The quality of the drawings ranges from moderately good to extremely poor to unintelligible doodles. Some have been damaged, others undoubtedly obliterated by the carving and scratching of names of Tikal visitors during the past eighty years.

Lester Walker of the University of Georgia spent several weeks recording the readily accessible graffiti in Tikal.

EXCAVATIONS

Digging this season was conducted in the following locations: the Stela 23 group; about Stelae 24 and 25; in H and E groups.

Stela 23 Group. The discovery of Stela 23 by two camp workmen early in the field season initiated controlled excavation in Tikal by the University Museum. The monument stood at the foot of a small pyramidal mound with some forty centimeters of the top exposed. We expected to find it complete, possibly with an altar in front of the stela. Our plans were to clear and record the monument, or monuments, a matter of a few days work at most, and continue elsewhere at the site. Instead, the stela was found to be only the reset upper half, there was no altar, and the excavation for the missing stela base proceeded sporadically throughout the season. This excavation is described by Coe and Broman in Tikal Report No. 2 and the stela is fully illustrated in Report No. 4. Five phases of constructional activity were encountered and important data obtained relating to the final occupation of Tikal, as well as to various earlier buildings, caches, and burials. The excavations failed to unearth the missing portion of the stela or any signs of the anticipated altar, but the fact was brought out that the Maya mutilated Early Classic monuments and later reset fragments just as if they had been complete.

Stela 24, located at the base of the stairway of Temple III, previously had been classed as plain (Stela D8). The writer happened to observe its exposed south edge when the light was favorable and noted weathered but unmistakable glyphs. Coe then cleared the area before the stela to the plaza floor and removed the debris to expose the butt. It stood, tilted forward slightly, in its original position. The main portion of the stela had broken off and fallen forward, face downward, on the plaza floor. The excavation brought to light many plain and carved fragments, some of the latter belonging to the associated Altar 7. The altar is near Stela 24, though somewhat south of the axis, and appears to have been moved in fairly recent times. Some stela fragments lay directly on the remarkably well preserved plaza floor 30 cms. below the present ground level, together with sherds of a ladle-type censer and a vertical, flanged censer chimney. Time did not permit turning the stela nor completing the work around the altar. We hope to complete the excavation of Stela 24 and Altar 7 during the 1958 season. It can be said, however, that the stela bears carving on the front and both sides. Superficial examination of the carved fragments indicates that the stela is a Late Classic monument.

Stela 25, comprising the top half only, was discovered by Hazard and Ortiz while opening a road southward from camp to Aguada Naranjo. It was found in the as yet unmapped area of Tikal approximately 500 m. south of the Temple of the Inscriptions and 200 m. southeast of the Stela 23 group. The monument lay face down, partly above and partly below the present ground level, just off the northeast edge of a small group of house mounds and a vaulted structure. It was not very closely associated with any particular mound, being some 10 m. east of the eastern end of the vaulted building. The stela seemingly had been abandoned on the spot where we found it rather than fallen from a standing position. The back, carved with glyphs, and part of the sides were exposed. We first cleaned away the dense vegetation, then photographed Stela 25 as it lay, excavated the sides, turned it on edge, and Broman then dug beneath its former position. She encountered traces of a decomposed plaster floor just below the monument, and earth and rock fill from the floor level down 40 cms. to bedrock. There were no carved fragments of the stela directly beneath it as might be expected if any breakage had occurred in the position where found. Hazard and the writer afterwards removed Stela 25 to the University Museum camp for safe keeping.

The stela has on the back an Initial Series dedicatory date of 9.4.3.0.0 1 Ahau 3 Yax, and human figures on either side and front (Shook, 1957, Fig. 31). It is fully illustrated in Tikal Report 4. In ancient times the monument had been broken, the front (principal) figure deliberately mutilated and the hieroglyphic text on the back partly effaced. Subsequently, the broken edges at the bottom and one side had been trimmed evenly by stone pecking. This suggests that the Maya may have intended to erect the upper half of the stone as a complete stela as they did with Stela 23.

Group H. In order to obtain better photographs of Stela 20, discovered by the writer in 1937 together with its altar, Altar 8, Hazard raised the stela on its right side. Both these monuments occur in Structure 95, an "enclosure." The positions originally occupied by the altar and stela were then dug by Broman in search of floor information and the expected stela cache. No definite floor was encountered here. A few bone fragments appeared as did a small piece of hematite. This last object might suggest a cache item but no certain cache was found. A trench was then dug axially to the north, uncovering the structure floor and the inner face of the north wall. This wall, like those of all known enclosures, consisted of Late Classic veneer masonry.

Coe, on his return from the field, was able to make an accurate line drawing of Stela 20 on the basis of the field photographs.

Group E. The east twin-pyramid complex is one of three in Group E. It was thoroughly cleaned of vegetation and mapped this past season. Debris was cleared from around the plain monuments at the west base of Structure 78. Broman excavated deeply in search of caches where Stelae E13 and E15 (and altars) had stood before falling. No caches were found under these two monuments. Below the 20 to 30 centimeters of surface humus, a level of small stones suggested the grouting of a disintegrated lime concrete floor.

The small stones overlay a shallow fill and, below the latter, sterile marl (marl in the Tikal area normally occurs beneath the hard surface crust of limestone). The stelae had been set at varying depths into the marl. The lack of superimposed court floors or traces of prior occupation is of interest. It may be accounted for by assuming that the builders of the twin-pyramid complex cut down the natural limestone ridge and all earlier remains on it. This material, we suspect, was utilized as fill on the ridge's north and south slopes to build up these edges to the level desired for the new court.

MISCELLANEOUS RESULTS

The continued study of Tikal, exploration for water, and incidental discoveries by the workmen while game hunting added much information worthy of recording.

We discovered three more artificial reservoirs during the past season, bringing the total to seven known to date. All were strategically located by the ancient inhabitants to capture the maximum surface drainage from buildings, courts, plazas, and natural ravines. So competently were they constructed that three of the seven reservoirs still retain rain-water throughout the year except for the final few months of the dry season. This is remarkable in view of the thousand years since the reservoirs were last cleared of silt and accumulation of rotted vegetation. Today we are largely dependent on one Maya reservoir around which our camp is constructed. We partly cleaned it after it dried up in April, and plan to deepen the reservoir further and clear the obstructed drainage inlets. We believe a study of Tikal water storage, particularly the capacity, will throw much light on the number of people inhabiting the city in Late Classic times. These data and those obtained from research on house-mounds should indicate the degree of urbanization attained by the Maya in Tikal.

Another important group of temple and palace structures was discovered by one of our workmen last season. The group lies well beyond the central area of the site, approximately 800 meters southwest of Temple IV, but still within the proposed area to be mapped. Other mound groups, chultuns, and quarries were located within the sixteen square kilometers, and beyond to the northeast.

Hazard surveyed the remains, discovered in 1956, of the settlement established at Tikal between 1850 and 1880 when an attempt was made to colonize the area. Most of the settlers were Maya from San Jose and San Andres on Lake Peten. We have scant information on the history of this settlement, but the remains are recognizable. These modern people selected elevated sites to erect their bush homes; we find their three-stone fireplaces, pottery and iron vessels, metates and manos on top of ancient house-mounds and terraces. Glass bottles, a few pieces of broken china, a church bell, machete and bayonet blades complete the inventory of material recovered. One metate still bore ancient carving on the side. Obviously a fragment of a Tikal carved stela had been used by the villagers to fashion a new metate.

Orange trees growing wild among the palms, breadnut, zapote, and other tropical forest trees conspicuously locate the modern settlement. It is about one kilometer east of the Main Plaza and near the ancient Maya reservoir around which our present camp is built. A dozen or so home sites have been identified by the presence of fire hearths, pottery, etc., yet only one showed any use of stone masonry. This house had a thin foundation wall of small uncut stones set in lime mortar.

The existence of a modern settlement at the site up to 1880 serves to keep us alert to the possible damage and destruction to the monuments and buildings of Tikal.

DISCUSSION

The 1957 season, in spite of our serious preoccupation with camp and water problems, was archaeologically productive. A large step also was taken towards opening the site as a tourist

attraction, an important consideration in our contract with the Guatemalan Government. Equally significant was the biological research program. A study of the avifauna of the Tikal region was begun under Frank B. Smithe and in cooperation with Raymond A. Paynter, Jr., of Harvard's Museum of Comparative Zoology. They were able after a few months in the field to collect skins and skeletons and to identify 185 species of birds in Tikal. This program, like others in the natural sciences, bears directly on our efforts to understand the environment in which the Maya developed. Birds often are depicted in Maya art ; their feathers were an important part of Maya ceremonial dress, and bones recovered archaeologically indicate the significance of birds as food, as a source of small tools, and in rituals. We welcome such cooperative programs on the fauna, flora, climate, and geology of the region as integral parts of our archaeological project in Tikal.

Excavations normally involve working backward through time, in reverse of human events. Hence, our first spadework focused much of our attention on the terminal phase, the last traces of Maya activity before the abandonment of Tikal. Why should an enormous city and region, so long occupied and with traditions deeply rooted, be deserted? Archaeologically, the event appears abrupt. At many sites we observe the cessation of temple and palace building and of the inscribing and erecting of monuments, and at Piedras Negras we note the smashing of magnificiently sculptured thrones; therefore, with some basis we interpret the event as sudden and accompanied by violence. It may not have been so.

There is a distinct possibility that the basic causes of the final abandonment may lie in the increase of population during the Classic period beyond the ability of the environment to sustain that population. The Maya hierarchy may not have understood these widespread economic causes and attributed the imbalance to the malevolence of the gods. Seemingly, towards the end of the Classic time, the hierarchy demanded larger and larger temples, palaces, and public works to appease the gods, perhaps, and to keep the people occupied. An enormous force of skilled and unskilled workmen obviously were required to construct so many buildings. Inevitably, there had to be an increase in hierarchy, civil authorities, specialists, and others dependent upon the food-producing populace. This further added to the economic burden until, we suspect, the farmers revolted. The uprising ended religious authority and organized government, which, in turn must have led to the neglect of the reservoirs and other large communal enterprises vital for the existence of a large population. We have evidence from Uaxactun and Copan that the common people moved into the palaces and temples and lived there for some length of time. They cooked, ate, slept, and some died in these palace and temple rooms. Rubbish of charcoal, ashes, animal and bird bones, utilitarian pottery and corn grinders littered floors up to a depth of half a meter. Such conditions certainly had not prevailed during the time of governmental authority in the Classic period. But do these surface remains, possibly the random wall drawings (graffiti), and other material objects really indicate the final terminus phase or are they actually post-Classic and of some duration?

Coe and Broman (1958) discuss what they believe to be very late activities. They suggest that Stela 23 and perhaps other re-used fragmentary monuments may have been reset after 10.2.0.0.0., that is, after Stela 11, the latest complete and dated stela known at present in Tikal. They reason that typical Classic ceremonialism was still dominant certainly until 10.2. 0.0.0., and that erecting of a fragmentary and mutilated sculpture would not have been tolerated by responsible priests. Satterthwaite (1958a) also discusses the various examples of incomplete stelae and the different interpretations possible. The writer (Shook, 1957, p. 45) has pointed out that, in view of the fact that the Tikal stelae involved are all of the Early Classic period, their breakage may have occurred at the end of that period. He reasons that the violence indicated may have been responsible for the end of the Early Classic period and perhaps the subsequent hiatus in Tikal inscriptions. But,

if this hypothesis is correct and that of Coe and Broman is also correct, we are left to explain how the Late Classic hierarchy handled the broken monuments.

We hope to explore fully the many ramifications of an exhaustive investigation of Tikal. We intend to publish the results of each season's work, presenting evidence and interpretation concerning old problems and the new ones that inevitably will appear. Our interpretations may frequently be wrong, but we earnestly hope to correct them as we go forward.

REFERENCES

Berlin, H.

1951 El Templo de las Inscripciones VI de Tikal. *Antropologia e Historia de Guatemala,* Vol.3, No. 1, pp. 33–54. Guatemala.

1953 A New Temple at Tikal. *Archaeology,* Vol.6, No. 2, pp. 82–86.

Coe, W. R., and V. L. Broman

1958 Excavations at the Stela 23 Group. No. 2 in "Tikal Reports Nos. 1–4." *Museum Monographs, The University Museum.* Philadelphia.

Maler, T.

1911 Explorations in the Department of Peten, Guatemala–Tikal. *Memoirs, Peabody Museum, Harvard University,* Vol.5, No. 1. Cambridge.

Maudslay, A.P.

1889–1902 Archaeology. *Biologia Centrali-Americana.* 5 vols. London.

Morley, S.G.

1937–1938 The Inscriptions of Peten. *Carnegie Institution of Washington, Publication* 437. 5 vols. Washington.

Proskouriakoff, T.

1946 An Album of Maya Architecture. *Carnegie Institution of Washington, Publication* 558. Washington.

Satterthwaite, L.

1956 Maya Dates on Stelae in Tikal "Enclosures." *University Museum Bulletin,* Vol. 20, No. 4. Philadelphia.

1958a The Problem of Abnormal Stela Placements at Tikal and Elsewhere. No. 3 in "Tikal Reports Nos. 1–4." *Museum Monographs, The University Museum.* Philadelphia.

1958b Five Newly Discovered Carved Monuments at Tikal and New Data on Four Others. No. 4 in "Tikal Reports Nos. 1–4." *Museum Monographs, The University Museum.* Philadelphia.

Shook, E. M.

1951 Investigaciones Arqueologicas en las Ruinas de Tikal, Departamento de El Peten, Guatemala. *Antropologia e Historia de Guatemala,* Vol. 3, No. 1, pp. 9–32. Guatemala.

1957 The Tikal Project. *University Museum Bulletin,* Vol. 21, No. 3. Philadelphia.

TIKAL REPORT NO. 2

EXCAVATIONS IN THE STELA 23 GROUP

William R. Coe and Vivian L. Broman

CONTENTS

Page

INTRODUCTION 27

EXCAVATIONS 30

Pre-Phase E 30

Phase E 30

Dating of Phase E 31

Phase D 32

Artifacts 32

Burials 34

Dating of Phase D 34

Phase C 35

Artifacts 35

Dating of Phase C 35

Phase B 36

Dating of Phase B 36

Phase A 36

Artifacts 39

Dating of Phase A 39

Surface 40

BURIALS AND CACHES 41

Burial 1 41

Burial 2 42

Burial 3 42

Burial 4 43

Cache 1 44

Cache 2 45

SUMMARY AND CONCLUSIONS 47

REFERENCES 51

FIGURES

Figure 1 Sketch plan of the Stela 23 Group 53

Figure 2 Plan of the Stela 23 excavation 53

Page

Figure 3 Composite section of the Stela 23 excavation 53
Figure 4 View from west prior to excavation 54
Figure 5 Excavation on completion, 1957 season 54
Figure 6 Stairway of Feature 3, from north 55
Figure 7 Feature 1, from southwest 55
Figure 8 Mosaics in surface of Floor 5 56
Figure 9 Burial 2 57
Figure 10 Burial 3 57
Figure 11 Eccentric obsidians 58
Figure 12 Eccentric flints 58
Figure 13 Incensario from fill of Feature 1 59
Figure 14 Polychrome bowl 60
Figure 15 Incurving red-ware bowl 60
Figure 16 Small problematic calcite (?) object 60

INTRODUCTION

Our primary interest in the Stela 23 group was the carved monument itself, which is treated at length in Tikal Report No. 4 of this series, by Linton Satterthwaite. Originally discovered in December 1956 by two camp workmen while hunting, this outlying group was visited by the staff on their arrival the following January.

The seven mounds, sunken courts, and supporting plaza comprising this small group will eventually be covered by our plane-table survey. However we can say that it is roughly 500 to 600 meters southwest of Temple VI (Temple of the Inscriptions). A tentative and obviously idealized plan of its arrangement is shown in Fig. 1.

Stela 23 (latest surviving date, 9.3.16.8.4) stood askew near the west base of a mound on the northeast corner of the group (Fig. 4). The mound, evidently that of a badly fallen temple is termed "Feature 2" in this report. Eventually it and all other structures will receive a final designation. The monument (facing Mag. N. 11° E.) was found buried by mound talus to the bottom of its second row of glyphs. Naturally we were very anxious to expose the whole of it which we assumed to be complete with its base far below the present surface.

The erect stela was cleared and found to consist of a large fragment of the upper portion. The remainder of nearly all our work here was motivated by concern with locating the missing portion as well as a possibly associated altar. The excavations, while they failed in these objectives, did yield a rather complex architectural sequence together with considerable insight into such factors as mutilation and re-use of a monument, and cache and burial practices. Substantial evidence was unearthed of what we believe to have been the terminal phase of Tikal's occupation.

Our unsuccessful search for the remainder of Stela 23 also provided considerable knowledge of a somewhat peripheral but surely ceremonial unit. In particular, the excavations definitely extended to Tikal the phenomenon of re-erection of broken stelae. Instances elsewhere are studied in Tikal Report No. 3.

The following report suffers on two counts: we have an architectural sequence, but there has not been time as yet for complete analysis of the associated artifacts, nor was it possible to follow floors as far as we would have wished. Bedrock was struck at one point but the sounding was inconclusive. There are numerous loose ends which necessarily make this report provisional. But in spite of obvious drawbacks, this small-scale excavation provided, as noted, various items of interest.

To aid the reader, it is necessary to outline the sequence by phases and respective contents, and to define special terms used here. These phases are defined by sequent architectural constructions ("features" and floors) (Figs. 2 and 3).

Pre-Phase E: Any presently unexcavated features below Floor 5 to bedrock, as well as such features below Feature 3; possible construction of Floor 5.

Phase E: (the earliest encountered): Feature 3; either construction of or continued use of Floor 5.

Phase D: Floor 2 and Burials 2, 3, and 4.

Phase C: Floor 1 and Cache 2.

Phase B: Feature 2 and continued use of Floor 1.

Phase A: (the latest encountered): Feature 1; stela re-use and setting of Cache 1; Burial 1.

Architectural features are as follows:

Feature 1: A veneered structure that might be termed a "frontal platform." It is later than and overlaps Feature 2 (Figs. 3 and 7).

Feature 2: Presumably a small pyramidal temple which seems to rest on Floor 1. It had a stairway on its front (west) side. It appears, from surface finds, to have been at least partly veneered with relatively thin, rectangular blocks. Feature 1 overlies the basal step of its stairway (Fig. 3).

Feature 3 : Situated to the west and below the level of Features 1 and 2. Structure fronted by a wide stairway, the whole covered by a very hard grayish plaster (Figs. 2, 3, and 6).

Our procedure consisted of clearing Stela 23, during which Floor 1 (as well as a patch of Floor 2) was found, and following Floor 1 to the east, thereby discovering the west edge of Feature 1. To expose the stela, trenching was begun on both sides, well away from the monument, and these trenches were carefully extended towards it. We were interested in recovering evidence of floor turn-up at the stela and we are now confident that clearing did not accidentally involve destruction of anything significant. Feature 1 was then exposed on its west and north sides. The trench along its north side revealed that this structure overlapped at least the basal step of the stairway of Feature 2. Feature 1 was then axially trenched to the east, disclosing internal details and confirmation of the overlap of Feature 2. Floor 1 was found to underlie Feature 2. A tomb (Burial 1) had been cut through Floor 1 to Floor 5 at the time of building Feature 1. The area west of Stela 23 was probed, revealing rare faint traces of Floor 1 and a single small patch of Floor 2. Only occasional pieces of plaster attested to the former presence in this location of Floor 1. A tightly packed fill was encountered below the slight remains of these two floors. Removal of this artifactually rich fill exposed Floor 5 and the important Feature 3. Non-intrusive Burials 2 and 3 were in this fill, and Burial 4 (east of the stela) was also located in it. The Feature 3 stairway was then cleared and sample areas of its top surface were investigated. Cache 2 and evidence of intentional leveling were found there. The area thought to be immediately beyond the presumed west side of Feature 3 was excavated (Fig. 2, west of Feature 3 Surface). This resulted in further evidence of Floor 1 and the discovery of Floors 3 and 4 (see Fig. 3) and, below them, bedrock. The west face of Feature 3 was not encountered. The stela was removed to camp. A cache (Cache 1) appeared beneath it. Burial 1 and the area in front (east) of Feature 3 were connected by a trench; this supplied certain

data for the composite profile in Fig. 3 and it also indicated that the missing stela base was not on an axial line of Feature 3.

The top of Stela 23 served as a vertical datum until the monument was removed to camp. A new datum has been substituted in our section; this is 6 m. above the top of Stela 23. All depths below "datum" in this report are based upon this revision. The highest point of Feature 2 is 71 cm. below datum (determined by transit).

Various individuals, at one time or another, aided the authors in the Stela 23 work: Edwin M. Shook, Froelich Rainey, James E. Hazard, and David M. Pendergast (of the University of California). The removal of Stela 23 to camp was handled by Linton Satterthwaite.

Work in 1957 at this group was done under the operation number "3A." In this largely preliminary report the data are given by phases proceeding from the earliest (Pre-Phase E) to the latest (Phase A), and finally to surface remains.

EXCAVATIONS

PRE-PHASE E

What antedates Phase E (see below) must at present be solely conjectural, but it would include what structures may lie below Floor 5 and Feature 3. In an attempt to define the shape of Feature 3, a test pit was cut down beyond a break in its top surface to the west (Figs. 2 and 3). This break ran northeast-southwest and was thought to be perhaps the western edge of the structure. By digging down to bedrock west of this break and then trenching in to the east, toward the feature, it was hoped that we might locate the back face. Bedrock was reached at 7.65 to 8.00 m. below datum and was exposed as an uneven surface. Floor 1 appeared about 23 cm. below the present ground surface in a fairly well preserved patch. Below this there was no further trace of Floor 2, nor of the top of Feature 3, the latter –6.98 m. here at the break. But at –7.19 m. and again at –7.34 m. there were traces of two other floors, now designated as Floors 3 and 4. These proved to be discontinuous on the west face of the test pit (fading out to the north) and did not show up at all on the north face below the section of Floor 1. Floor 1 was itself discontinuous on the west face of the west pit (fading out to the north) and did not show up at all on the north face below the section of Floor 1. Floor 1 was itself discontinuous on the west face, disappearing to the south, but still overlapping, but at a higher level, Floors 3 and 4 on this face. The level of bedrock here suggests that Floor 5 (east of Feature 3) may be the oldest floor there. If so, it may have been contemporary with Floor 4. But due to these uncertainties, neither Floor 3 nor Floor 4 has been assigned a phase position in the sequence.

Since no definite trace of the western face of Feature 3 was found in this test, we assume that the structure was broken up along a north-south line at the same time that the other intentional break was made on an east-west line (see description under "Phase D").

Floors 3 and 4 await further definition which can be done only after Feature 3 is fully excavated. It should be mentioned here that the plaster encountered at the bottom of Cache 2 (see under "Phase C" and "Burials and Caches") could be part of Floor 3. No stratified cultural material for Pre-Phase 3 is yet available, material from the test pit not having been differentiated by level.

PHASE E

Feature 3 and the use of Floor 5, if not the actual construction of this floor (to be tested for extension under Feature 3), belong to this phase. So far as cleared, Feature 3 (Figs. 2, 3, 6) consisted of two steps with slightly battered risers about 30 cm. high and with relatively deep treads. A third step was formed in effect by the platform edge; this had been at least partially cut down for the placement of a later plaster floor, which we subsequently equated with Floor 2, on the basis of general level.

The stairway steps rose from a very well preserved plaster floor (Floor 5) which sloped down to the east toward the area below the stela and Features 1 and 2. The plaster of the floor turned up against the riser of the lowest step, but where it was broken the floor appeared to continue underneath. This indicates either that the steps had been replastered, or that the floor underlay the steps to the front wall of the platform, or that the floor underlay the whole structure. This will have to be tested. The stairway may be described as follows: fully projecting, without balustrades, with battered risers and relatively deep treads. Stairway oriented Mag. S. 14°W. The south side of the stairway projected further to the east than the north one (Fig. 2).

Following Floor 5 along the structure's north-south wall, north of the steps, we located a definite corner. At the time it was being probed, it was discovered that a well-preserved original plaster surface (north of the east-west break, Fig. 2) on top of the structure extended beyond the line of this corner to the north. We then postulated that this corner must represent an inset that the wall of the structure therefore continues north, as does the plastered floor above. In plan, the platform may have shown a rectangular (or round?) inset corner. This possibility must also be investigated. The wall rises vertically at the stair angles with no sign of an apron molding or any other embellishment. But an apron molding on the hypothetical inset corner remains a possibility. To the south of the steps, the wall had retained its plaster to a higher level, but excavation was halted before the corner was encountered. But, on the presumption of bilateral symmetry, we have indicated it in Fig. 2.

The top of the structure was floored with the same smooth hard plaster that covered the steps and Floor 5. This surface had been broken into and most of the edge of the "third" step cut away at the time of Phase D (see below). This break-up was halted before the northern section of the surface was destroyed (Fig. 2). It would seem that there had been a change of plan and the Phase D builders then decided to lay the floor (Floor 2) at the same level as the original top surface of Feature 3—a surface which they already had largely destroyed.

As cleared, this Feature 3 original surface showed no sign of superstructure of any kind. Certainly there is no evidence on the known front part of the platform. Further excavation to the north and west may reveal something, but at the moment one can suggest that the steps led up to a broad plaza level without any superstructure, or perhaps to a broad terrace in front of structures set well back from the step edge.

After the reset stela portion was removed to camp, a trench was cut through to the tomb (Burial 1), following Floor 5. Almost directly under the spot where the stela had stood, a mosaic of tiny, weathered, red-orange sherds was found set in the floor (Fig. 8). This must have been done when the plaster was fresh and soft; the sherds were pressed in, flush with the level of the floor. It is difficult to say what the design of the mosaic represents; it may be a jaguar mask. Some sherds of the mosaic were missing on discovery. An additional mosaic occurred about 1 m. east and suggests the tip of an arrow pointing at the mask. The location of the mask below the later reset stela is surely mere coincidence.

DATING OF PHASE E

Since Phase E consists of the use or construction of Floor 5 and the construction of Feature 3, and since neither was penetrated by excavation, we have no artifactual material which might help to date this phase. Stylistically, Feature 3 is very simple. Had we been able to trench the stair-

way, information on masonry might provide a basis for dating (see A. L. Smith, 1950, p. 75). There is nothing in the form of the stairway, however, to preclude its having been built in Early Classic times, judging from evidence from Uaxactun. There are no traces, as mentioned, of any structure on top of the platform as cleared this past season. One approach to dating is the occurrence of stucco ornament fragments in the fill overlying the stairway; they are described below under "Phase D" and are believed to be Early Classic. But Phase E is hardly proved as Early Classic by this fact. It is obvious that Floor 5 must be followed out to see if it extends under the steps and under the platform. The interior of Feature 3 awaits testing which will provide further clues to the possible dating of this structure. We suspect that it is Early Classic but lack proof.

PHASE D

At the general level of Floor 2 (Fig. 2), a test trench, 1.50 by 1.35 m., was laid out northwest of the stela in order to go down to bedrock (then believed to be shortly below Floor 2). The level of Floor 2 was established at –6.89 m. Only a small fragment of this floor was exposed on the north edge of the excavated area, west of the satisfactory exposure of Floor 1. No further trace of Floor 2 could be found at this time, so the area in front (west) of the stela was cleared to approximately the projected level of Floor 2. Soft fill lay below this level to a depth of 15 to 20 cm., where large blocks of limestone were encountered (Figs. 3 and 5). Some of these blocks were fairly hard and dressed, others were soft and roughly shaped, while most of the fill consisted of very soft, chalky lumps. There seem to have been no veneer slabs nor vault stones in this fill. The nature of the blocks, and the fact that pockets of grayish soil containing flecks of charcoal and an occasional sherd, flint flake, and obsidian flake-blade fragment, made it clear that bedrock had not been reached. This fill was very compacted, and digging was slow and unrewarding except for two pockets of loose dark soil crammed with obsidian flakes and flake blades (the majority fragmentary) and some flint flakes (Lots 4 and 5). To the west, at about 7.40 m. below datum a thin grayish brown earth occurred, below which a well-preserved plaster step was uncovered, running in a more or less north-south line and facing Feature 2. This new part of Feature 3 (see above under "Phase E"), no trace of which showed on the surface, required the opening of a much larger area of excavation and introduced many new problems, most of which still await solution.

Phase D, then, includes the burying of Feature 3 with a distinctive fill, and the construction of Floor 2 on the fill. The relationship of Floor 2 to the top surface of Feature 3, both approximately at the same level, is rather complicated and perhaps not obvious in Figs. 2 and 3. Evidently Phase D was initiated by a decision to tear down Feature 3 to a level close to that of the tread of its stairway's second step. But this work was halted on an east-west line that is indicated in Fig. 2 and appears also in Fig. 5, far left in foreground. The mistakenly excavated area south of this line was filled, as was the whole area to the east of Feature 3. Floor 2 was laid on this fill at a level coincident with that of the then surviving portion of the top of Feature 3 (found north of the line). Floor 2 along this line thinly overlaps the old surface. Floor 2, therefore, is a new surface, but an older one was used with it. Once Floor 2 was constructed, the east wall and stairway of Feature 3 were completely buried.

ARTIFACTS

The following material was recovered in Lots 3–5, 7–8, 13, 17, 19, 20. Brief descriptions of the more important objects are given below.

Pottery. Most of the sherd material was very fragmentary and weathered and still awaits further study. Of special note, however, are a carved Fine Orange sherd (Lot 3) and a basal angle sherd (Lot 7) coated on the exterior with stucco painted light green.

Modeled stucco. Thirty-two fragments of varying size occurred throughout the fill. Gray in section with flecks of charcoal prominent, most of these bore traces of paint: specular hematite red-on-orange, white-on-red-on-orange, green-on-red-on-orange. One large fragment seems to represent an eye. Two additional fragments were found with Burial 3, to be discussed later under this phase. This distinctive, painted stucco is identical with stucco from Early Classic Uaxactun structures (E.M. Shook, verbal information; also A. L. Smith, 1950, p. 25).

Carved stone. One fragment from the standing portion of Stela 23 was found in the jumble of fill in front of and below the reset position. Since only one fragment was found and that quite high in the fill, it seems unreasonable to presume that the stela was broken up at or prior to this time (i. e., Phase D). It is regrettable that this single fragment was moved by workmen and was not seen undisturbed. It seems to have been below the Floor 2 level (projected), but neither that nor Floor 1 was intact at this locus. Vegetative action could have lowered it considerably. Another fragment, which also fits the stela (top), was found close to the present surface. The fact that no other pieces, large or small, were recovered, although the whole area around the reset portion was excavated to Floor 5 (Phase E or possibly Pre-Phase E) indicates to us, at any rate, that the stela break-up does not necessarily pertain to Phase D.

Seventeen fragments of carved pink limestone, three of which are incised with a geometric plait design, occurred in the area around and below the stela. They are thought to belong to one or more related carvings, the use and form of which are unknown. They do indicate break-up of carved stone at the time of, or before the deposit of, this Phase D fill, but Stela 23, as noted, does not seem to have been involved.

Utilitarian worked stone. There are very few items in this category: two mano fragments (one of limestone, the other of granite), a metate fragment of granite, and an object of limestone that may be a pestle. There is also a fragment of what appears to be a limestone dish with a slightly raised edge, smooth interior, relatively rough external sides, and a smoothed base.

Flint. This occurs mainly as flakes (125 chips and primary flakes), only a very few of which are tools. One chopper and a fragment of another, two scrapers which are nothing more than used flake-core fragments, and a drill or point-stem fragment comprise the utilitarian items. No blades or blade-core fragments were found here. Of special interest is a crudely chipped flake "eccentric flint" in a serpentine form, unmistakably a cache item. Since it occurred without context, it was assumed that it came from a disturbed cache. The presence of an obsidian eccentric and a shell figurine adds strength to this supposition (see also discussion of Cache 1 under "Burials and Caches" below).

Obsidian. About 330 flakes and chips and about 360 flake-blade fragments make up the bulk of obsidian items. Ten blade-core fragments, two scrapers (one a beautifully made double end-of-blade scraper), and the eccentric obsidian (alternately notched and chipped re-used blade-core with striking platform still evident) complete the total.

Jadeite. A fragment of a large, burnished, flat-end bead shows vertical grooving in the perforation, which tapers to the center. The form and scarring of this perforation strongly suggest string-sawing, a technique that we believe has not been previously recorded in Peten archaeology.

Calcite. A most unusual object (Fig. 16) was found in the mouth of Burial 3. This small carved stone, believed to be of calcite, in the form of a truncated pyramid with a grooved base and opposed shallow depressions on the sides parallel to the groove, was about the size of a human incisor tooth and superficially resembled one. Unfortunately this object was lost in the field but there is good agreement on its form and size.

Shell. Nine bivalve halves (mostly *Arca occidentalis*), none of which articulate, and one serpula with spire intact (*Vermicularia spirata*) were found. A small figurine, cut from a spondylus shell, is certainly a cache item; it resembles those reported by Thompson from San José and elsewhere (Thompson, 1939, Fig. 97). The serpula may also be from a cache as may also some or all of the bivalves.

BURIALS

In a separate section of this report the three burials encountered in the Phase D fill will be discussed. Burial 2 was the best preserved, a flexed burial lying directly on Floor 5 (Fig. 9; also Fig. 2). Burials 3 (Fig. 10) and 4 (Figs. 2 and 3) were in poor condition and had been included in the fill as it was laid down. Burial 3 was also flexed but Burial 4 was extended.

DATING OF PHASE D

It is indeed unfortunate that no trace of Floor 1 nor of Floor 2 was found to extend over the area between Features 1 and 3 except for a possible fragment of Floor 2 below and in front of the stela (Fig. 3). It would appear that Floor 2 was largely disturbed or torn up before the placement of Floor 1, complicating the picture (see discussion under "Phase C"). Floor 2 at one time presumably covered the whole area, extending across Feature 3 at the level of its own top surface, and extending in an area where that top surface had been removed. Floor 2 thus served with the still-preserved portion of the original top surface of Feature 3 (see discussion above).

Floor 2 had been replastered several times and patches of this plaster were found in varying degrees of preservation. At one point, a cache (Cache 2; see under "Burials and Caches" and "Phase C") had been set into Floor 2 (Fig. 3), presumably during Phase C (construction of Floor 1); two other holes of the same size also appeared in Floor 2, but these were not tested (Fig. 2). Due to the extremely poor state of preservation of the plastered floor to the south, no other holes could be detected.

We therefore postulate that the stela fragment and the carved Fine Orange sherd (the latter also mentioned under "Surface"), both of which occurred in the deposit at a level between projected Floors 1 and 2 and the top of the limestone block fill (Fig. 3), represent later material intrusive into what may otherwise be regarded as a probable early Late Classic phase. In other words, the building activity represented by Phase D is possibly early Late Classic with some later disturbance penetrating the top of its fill. The fill seems certainly to have been derived, at least in part, from Early Classic building activity, as evidenced by the modeled stucco fragments and the stuccoed sherd. More certain analysis can be made when the pottery is studied and the specific Tikal types are recognized and understood.

PHASE C

This phase refers to the laying of Floor 1; it would also include any structure found to be associated with this floor and built at the same time as the floor. As noted in the Introduction, Floor 1 contacts but underlies at least the basal portion of Feature 2's stairway. Until proved otherwise, we shall assume that this floor runs beneath the whole building (presumably a small temple structure). The architectural associations of Floor 1 are as yet unknown.

Floor 1, where intact, showed a hard white-plastered surface with no sure indication of resurfacing. It was located by us in front, to the sides, and beneath Feature 1 (a "frontal platform" later than Feature 2). Only faint traces of the floor were found to the west of Stela 23, but it strongly reappeared in the most westerly excavation (Figs. 2 and 3). Also, the trench across the surface of Feature 3 and leading to this excavation disclosed a few further traces of Floor 1. This floor also ran beneath Feature 2. When not beneath architecture, Floor 1 lies at no great depth below the present surface. Line-leveling and transit readings established that the two major surviving samples (beneath and about Feature 1 and in our westernmost excavation) are approximately level. A slight slope was evident in front of Feature 1 and east of Stela 23 (Fig. 3).

Floor 1 postdates Floor 2. The two floors are missing over a large area west of the monument. But it is significant that Floor 2 (Phase D) did not appear below the surviving Floor 1 fragments, for instance on the north and south sides of the deep trench between Burial 1 and Stela 23. This suggests that Floor 2 had either disintegrated nearly completely over a relatively large area or had been intentionally destroyed at the time of laying Floor 1.

Cache 2 appeared in a hole dug through the surviving patch of Floor 2 above Feature 3 (Figs. 2 and 3). The cache, consisting solely of unworked shells and a few bits of jadeite (fully described under "Burials and Caches") was set beneath a roughly squared stone, 32 by 35 cm., which rested on the Floor 2 surface. In view of the cache's cover-stone, resting loosely as it does over the cache but on Floor 2 (rather than flush with it or under it), it seems unlikely that the offering was made during the period of use of Floor 2. A fair explanation would be that the cache was made at the moment of laying Floor 1. Alternatively it was set through Floors 1 and 2 and thus would date from the post-constructional period of Floor 1 (Phase B or A). But the position of the cover-stone makes the later dating improbable. Consequently the cache is considered to belong to Phase C and to have been deposited at the conclusion of the period in which Floor 2 was in use.

ARTIFACTS

No artifacts beyond the few bits of jade in Cache 2 can be confidently attributed to Phase C. No definite Phase C stratum could be isolated. In the area west of the stela, conditions are uncertain above the level of the Phase D fill. As noted, there are reasons for believing that Floors 2 and 1 were possibly destroyed over a fairly large area. Thus, mixture of material from Phases C, B, and A is very probable. However, some of the following lots may contain material from Phase C: 1–4, 13, 17–19, 24, 26, 27.

DATING OF PHASE C

In the absence of architecture and surely associated artifacts, the dating of this phase depends on the datings of Phases B and D. Consequently, Phase C is quite certainly Late Classic.

PHASE B

This phase covers the construction of the supposed pyramidal temple (Feature 2) which partially underlies Feature 1 and is presumed (see above) to rest on Floor 1. Our knowledge of this structure is most sketchy and is largely derived from surface indications. These include the conformation of the mound as well as fallen masonry. It is now 5.92 m. high above Floor 1. A number of veneer stones were noted well up on its west surface. One of these is relatively small and has a beveled edge, suggesting a vault stone. Other masonry, probably from this structure, had fallen in front of Feature 1.

The axial trench through Feature 1 and clearing along the north face of Feature 1 (see under "Phase A," also "Introduction") uncovered the basal step of the stairway on the west side of Feature 2, i. e.,the front. The riser of this step was 28 cm. high and the whole step must have measured north-south 8 to 9 m. The tread was at least 75 cm. deep. The riser of the second step could not be found; possibly it and others above it were removed during the addition of Feature 1 which overlapped the stairway.

The two trenches, in and alongside of Feature 1, demonstrated that Floor 1 continues east below the basal step of Feature 2's stairway, but how far it runs to the east could not be determined at the time. The turn-up of Floor 1 at this basal step was clearly secondary. We did not actually penetrate any portion of Feature 2, though Feature 1 may have done so; thus we have no sherds or other artifacts to help in dating.

DATING OF PHASE B

This is largely dependent on presence of veneer masonry which is presumed to have been cut for use on Feature 2. As at Uaxactun, veneer-work with large rectangular slabs is Late Classic (Shook, 1951, p. 30). Its use at Tikal can be minimally dated by various stela "enclosures" in which this type of masonry was employed; these range from 9.16.0.0.0 (Stela 20) to 9.18.0.0.0 (Stela 19). Presumably the "enclosure" of Stela 16 (9.14.0.0.0) is also veneered with this type of masonry.

Although our conclusion needs to be verified by excavation, it seems probable that Feature 2 was constructed during middle to late Late Classic times.

PHASE A

As the Introduction indicated, this phase is believed to be the latest in this locality. It includes the construction of Feature 1, Burial 1, and probably the resetting of Cache 1 and the re-use of Stela 23.

Stela 23 (6 m. from datum down to highest spot on stela top) was cleared of surface material and eventually exposed. It leaned to the west, probably as the result of insecure cradling, root action, and falling trees. It rested partially on its jagged break and, to the west, on various wedged small and large stones (Fig. 3). Its present base was at 6.88 m. below datum. Floor 1, constructed in Phase C, appeared clearly to the southeast, east, and northeast of the stela but could be traced no closer than 20 cm. from it (Fig. 2). Floor 1, as it emerged from beneath Feature 1 (Figs. 3 and 7) is

at –6.70 m. and slumped to the west an extra 2 to 3 cm. before it finally broke off. Root action was severe in the immediate area. Thus, in spite of no evidence of physical association, the stela's broken bottom was below the projected level of Floor 1. But it did not penetrate to the projected level of Floor 2 at –6.89 m., a surface assigned to Phase D. It seems quite certain that the resetting of the by then fragmentary monument occurred after Phase D. Physical evidence at the spot permits the re-erection at any time after Phase D.

Feature 1 was first encountered behind Stela 23 as a north-south row of squared stones (Fig. 7). This row rested on Floor 1 and was situated 87 cm. east of the glyphic surface base of the stela. It appears to represent the riser of a basal step of a stairway, measuring at this point 2.38 m. wide from north to south. No clear turn-up of Floor 1 at this step was discovered, and subsequent trenching showed that this floor ran below the step.

In the angle formed by the floor and the row (interpreted as a step), three large veneer-like slabs were found, one measuring 50 x 30 x 10 cm. These had fallen from somewhere up on the mound and one of them had made a noticeable dent in the floor. No debris intervened between this stone and the floor. The fall thus appears to have occurred when the floor was relatively free of debris; disintegration was evidently in process shortly after abandonment in this locality.

Behind Stela 23, Floor 1 was followed laterally to the north and south. The northwest corner of Feature 1 was located. Further clearing on Floor 1 revealed the north facing of the feature. This facing consisted of two courses of generally large veneer stones set in mud (Fig. 7, left). The lower course ran 1.55 m. east from the northwest corner, at which point it met the remains of a stucco-covered stone step (visible in Fig. 7, extreme left), oriented approximately north and south. Floor 1 was found to run under this step which was subsequently identified as the basal step of Feature 2 (see under "Phase B"). This lower course, for the most part, was found slightly above the floor on a thin layer of granular earth believed to have been mud. The upper course, with a maximum height of 80 cm. above Floor 1, clearly overlapped the stucco-covered step, and was followed east 2.15 m. in all from the northwest corner of the feature. Brief probing beyond this point failed to show further signs of the course. Since our objective was the discovery of the missing half of the stela, further incidental trenching was felt unwise.

This minor work on architecture did however indicate three phases of construction: Phases A, B, and C, with A pertaining to Feature 1, B to Feature 2, and C to Floor 1. This sequence was verified by an axial trench dug through at least a good portion of Feature 1, west to east, in search of the remainder of Stela 23.

Floor 1 was successfully followed along the edges of the trench, although, centrally, the floor was missing (Fig. 2). The hearting of Feature 1 was found to be composed of broken but occasionally intact limestone building blocks, veneer slabs (a few set on edge in the fill), and chunks of limestone, all set in a mixture of a hard gray binder and much looser mud. As the trench proceeded to the east, a rectangular break in Floor 1 was encountered. This disturbed area, when excavated, developed into Burial 1 (Figs. 2 and 3). At a point 2.97 m. from the back of Stela 23, a stucco-covered step was found. This was obviously a continuation of the step of Feature 2 seen in our trench along the north face of Feature 1. The distinctive Feature 1 fill continued east on top of this basal step but was followed east only some 40 cm. from the riser. Overlap of Feature 2 by Feature 1 was again evident, but time and objective did not permit the clearing necessary to show how Feature 1 was placed against the earlier one.

Significantly, no monument fragment appeared nor was a pit noted where the complete stela might

once have stood. The condition of Floor 1 beneath Feature 1 suggests decomposition of the immediate portion of the floor at or before the time of building Feature 1.

The large rectangular area, oriented north-south, just in front of Feature 2, was excavated, eventually disclosing Burial 1 (Figs. 2 and 3). This burial had been placed through Floor 1 at the time of building Feature 1. The intrusive pit beneath Floor 1 was packed with fill indistinguishable from, and definitely blending with, the fill of Feature 1. Protruding slightly above Floor 1 was a layer of unevenly laid limymaterial that fused with Feature 1 and Burial 1 fill; this layer was confined to the north portion of the cut. This ancient pit, flaring towards its bottom, was found to be spottily lined with what seemed to be dark brown mud. At 65 to 78 cm. below Floor 1 narrow rectangular blocks forming capstones were met. These were irregularly set, one against another, across (east-west) the span of the crypt beneath. Seven such stones were present; only one had slipped down (east side). These were gradually removed, disclosing the ancient original soft seepage. Despite the awkward position for excavation, retention of certain capstones did allow opportunity for care. This fact is stated inasmuch as the skeletal situation was somewhat peculiar.

Bone material was concentrated at the extreme north end of the crypt, near the two vessels (Figs. 13 and 14) accompanying the burial. However, further bones, all in poor condition, were found together 50 to 70 cm. north of the south end. All offerings and skeletal fragments rested directly on a hard, smooth, stuccoed surface, determined to be Floor 5 by projection, leveling, and eventual trenching. This burial is treated in detail under "Burials and Caches."

Phase A, then, minimally comprises Feature 1 and Burial 1. The floor level used, following this phase of construction, was Floor 1, a Phase C product. Feature 1 overlaps Feature 2, a Phase B construction. Just prior to building Feature 1, a deep pit was dug to Floor 5 (laid no later than Phase E) for Burial 1. To build the crypt it was necessary to cut through Phase C and D activities.

Feature 1 remains hard to visualize as a whole (Figs. 2, 3, 5, and 7). Our best evidence would seem to indicate a two-course high platform with its top surface about 80 cm. above Floor 1. This platform was set against the stairway of Feature 2, a temple structure, and may have involved the removal of at least the second step from the bottom. The basal step, evidently wider (north-south) than the remainder of the stairway, was left largely intact by the Phase A builder and allowed to protrude beneath the north and presumably the south side of Feature 1. Access to this crudely built platform was via a stairway, possibly of two steps of which only the badly slumped lowest riser remained at the time of our work. Set nearly axially in front of this platform and its stairway was Stela 23.

Our assignment of the resetting of the Stela 23 fragment to Phase A requires explanation. As noted, the monument rested below the level of Floor 1 but just above the projected level of Floor 2. Had a primary turn-up of Floor 1 existed, the event of re-erection would have to be placed in Phase C. But Floor 1 breaks off well behind the monument; it never appeared directly in front, nor laterally. The present assignment of the re-use of Stela 23 to one of three possibilities is based upon two considerations. One is the proximity of the monument to Feature 1. The second involves the apparent decadence of the platform, as suggested by position, mud mortar, re-use of probably older masonry on the exterior, and the inclusion of similar veneer slabs in its hearting. This appraisal relates to the implied decadence of the act of cradling a fragmentary stela on dirt and a few wedged stones; an upper fragment was used as if it were a complete monument. It is a puzzling situation, and other explanations and problems come to mind which are taken up below. It is necessary however to describe the cache found beneath the monument on its removal.

Cache 2, comprising eccentric obsidians and flints (Figs. 11 and 12), as well as an incomplete mosaic of hematite, pyrite, and jadeite elements, together with shell material (see under "Burials and Caches"), was concentrated without a pottery container 10 to 30 cm. below the stela (i. e., 6.96 to about 7.16 m. below datum). The votive components occupied an area 30 cm. north and south and 25 cm. east and west. This area was seemingly bordered by a crude stone cist; one stone formed the north edge and a second the east edge. A few small stones covered the cache contents. The fill about these objects was quite loose in contrast to the fill pertaining to Phase D. It seemed at the time that the cache was intrusive in this fill and thus postdated Phase D. Absence of plaster does not allow us to say confidently that Floors 1 and 2 were both penetrated in making the offering. Actually, as our section indicates (Fig. 3), the top of the cist was about 5 cm. below projected Floor 2. But it would be asking too much of coincidence to treat the cache as an early sub-floor deposit over which a re-used stela fragment just happened to be placed at a later time. The cache's position and proximity in depth to the stela's present base strongly argue for contemporaneity. Our doubts fall on whether the cache items were fashioned in Phase A. To anticipate, this seems unlikely. Rather the cache represents a redeposit of an older offering, but whether originally of Stela 23 or not is problematical. A Phase A assignment for only the setting of Cache 1 seems reasonable.

However, two eccentrics, technologically similar to those in Cache 1, and a shell figurine were found outside this cache (described under "Phase D"). Furthermore, the cist appeared to lack boundary stones on the west and south sides. The possibility of disturbance is discussed under "Burials and Caches."

ARTIFACTS

Fragments of a reconstructable, open-based, vertical-flanged incensario (or chimney) (Fig. 13) were recovered from Feature 1 hearting with no possibility of surface admixture. Various sherds of a second incensario, comparable to the first, come from this same fill. A unique whetstone of sandstone was located in the fill. The burial yielded a worn polychrome bowl (Fig. 14) and a large incurving red bowl (Fig. 15). The cache, as noted, contained various fine objects but we cannot be sure and, in fact, doubt that they were contemporary products.

DATING OF PHASE A

Relative dating of this phase essentially depends on items like the recovered incensario material. The section devoted to surface material (page 40) mentions the presence of further censer sherds, and a fragment of a ladle incensario, as well as carved Fine Orange sherds. Judging by finds from Uaxactun, San Jose, and other sites, these are diagnostic of a very late phase of Classic lowland culture. These local surface finds, from present surface down to actual or projected Floor 1 level, presumably reflect a period of Feature 1 use. The material from within this structure is interpreted as having been current or available at the time of construction.

The incensario, or more correctly, incense-burner chimney, shown in Fig. 13, is considered as contemporaneous with the construction of Feature 1. It shows no evidence of use, either in wear or expectable sooting. Physical data are given in the caption. Its main characteristics, apart from paste and absence of slip, are the cylindrical form, open top and bottom, open back, lateral vertical flanges, eye-nose loop (fragmentary), thin convex nose, central upper incisors (missing except for stub), projecting lips with mouth open to interior, and ribbon-like appliqued ornament about mouth and

converging below it. A remarkably similar vessel was illustrated by Gann (1934, p. 53, Fig. 6); it was found with eleven others, almost identical in form, "upon a stone altar in a cave in the Western District of British Honduras." One of the eleven vessels appears to be in the Museum of the American Indian, Heye Foundation; it is labeled as from "Vaca River, Belize." Other censers comparable in certain respects, datable as Holmul 5, appeared in Thompson's excavations in the Mountain Cow area (1931, pp. 310–12). At Piedras Negras, parts of a pair of open-based incensarios with vertical flanges (Proskouriakoff, 1946, no. 5) were found in a position surely datable as prior to 9.12.5. 0.0 (Satterthwaite, verbal information), but these are in many ways different from our example. This is also true of three open-based, vertical-flanged vessels from a Tzacol cache at Uaxactun (Ricketson and Ricketson, 1937, p. 282, Fig. 191). Finally, R. E. Smith (1944, p. 41, Fig. 2 *a–e*) records five specimens relevant to ours; these are allegedly from Paso Caballos in the Peten. Censers of this general type, stemming from the lowlands, badly need study (in this regard, see Kidder, Jennings and Shook, 1946, pp. 213, 239). It is our feeling that the specific type encountered in Feature 1 is very late, judging from the numerous finds at Tikal of cognate fragments in superficial contexts. These will be published in the near future. The large incurving red-ware bowl, with flat base and flat lip, from Burial 1, has lost most of its original slip (Fig. 15). At Uaxactun, this is a Tepeu 3 type (see R. E. Smith, 1955, p. 190). The accompanying flat-base polychrome bowl (red-orange-black-cream) (Fig. 14) is decidely Tepeu 2 by Uaxactun standards (*ibid.* p. 178, Fig. 61, *a*, 1–10). It is extremely worn on both interior and exterior.

As regards dating, then, we can say that Feature 1 functioned at a time when various seemingly terminal Classic period elements were present at Tikal. The construction of the feature occurred certainly in Late Classic times and very probably near its close. The Tepeu 2 bowl, at the time of Burial 1, would seem to have been an heirloom, or possibly a salvaged item from an earlier deposit, or it may indicate overlap of ceramic periods.

SURFACE

A considerable number of artifacts appeared in soil overlying Floor 1. Inasmuch as Floor 1 was largely destroyed, instances of certainly segrated material are rare.

Our interest in this surface deposit centers on the question of to what degree its contents represent the final occupation of the Stela 23 group. Tree roots and wash may well have redeposited originally buried artifacts on or near the surface of the excavation area.

However, in the angle formed by Floor 1 and the west base of Feature 1 were various censer sherds (Lot 2) resembling in various respects the nearly complete vessel shown in (Fig. 13). Another sherd (Lot 3), representing the juncture of handle and pan of a ladle-type incensario, definitely occurred in the debris over Floor 1. A carved Fine Orange sherd comes from an evidently disturbed but still relatively superficial position (see discussion under "Phase D"). A number of Late Classic figurines were surface finds. These various items, all with sure or seeming temporal value, seem to indicate that the group functioned in Late Classic times and probably until very late in that period. Nothing believed to be indicative of post-Classic occupation, such as plumbate, was discovered.

BURIALS AND CACHES

The skeletal material was examined in the field by Dr. Charles Weer Goff, of the School of Medicine, Yale University, who has kindly supplied us with the descriptions which we have used under the sub-heading "Skeletal material" in this chapter. The grave types used in the burial analyses agree with the terminology established by A. L. Smith (1950, p. 88).

BURIAL 1
(Figs. 2 and 3)

Location. Stela 23 group, Lot 12, on Floor 5 at bottom of pit dug through Floor 1, directly in front (west) of basal step of Feature 2's stairway.

Period. Phase A, at the time of building Feature 1. Late in the Late Classic period.

Grave type. Crypt.

Age, sex. Adult male, 50 plus.

Position. Uncertain. Suggestions of a seated burial. If not, then probably extended with head surely to the north. Articulation of certain foot bones, and parallel tibiae, indicate primary burial. See "Comment" below.

Furniture. 1 polychrome bowl (Fig. 14) and 1 incurving red-ware bowl (Fig. 15), both situated at north end of crypt, resting directly on floor (Floor 5), with the red-ware bowl inverted and partly resting over the polychrome bowl which was not inverted.

Skeletal material. Two molar teeth, one with cavity of caries; one central incisor tooth from lower jaw tubularly drilled to receive inset (not found). Left and right humeri show strong muscle markings, deep bicepital groove and tuberosities. Left and right tibiae, fragments of fibulae, radii and ulnae , all present. First metatarsal of right foot present. Left talus and calcaneus united by an anomalous fusion (from birth). Tarsal navicular, left, is normal. Left and right innominate well preserved about acetabulum; left is normal but right shows evidence of an osteoarthritic hip joint. Male sciatic arch and articular surface of left femur. Vertebrae: two cervicals are fused by osteoarthritis; one thoracic and one lumbar vertebra.

This elderly male evidently had trouble with his left foot from birth, which required favoring his right leg, leading to deformation of the right hip joint. The fusion of the two cervical vertebrae was so pronounced that it could have been present from birth. It is essentially an anomalous fusion.

Comment. The burial position is a problem. Ribs and vertebrae were found around the vessels at the north end. The fused vertebrae were beneath the inverted red bowl. Teeth and ribs were scattered 75 to 110 cm. south from the north wall. The broken pelvis, with a few rib bones below it,

lay directly on the floor; along with parallel tibiae (whether proximal portions to north or south unfortunately not determined), these were located in an area 50 to 70 cm. north of the south end of the crypt. If this was a very hunched, seated burial in more or less the center of the crypt, the slumping of a capstone (evident on excavation) could have caused the skeleton to break to the north, scattering ribs, teeth, and vertebrae, and perhaps also the now totally lost skull. The Stela 23 excavation was full of such problems and this is simply one more of them.

BURIAL 2
(Figs. 2 and 9)

Location. Stela 23 group, Lot 14, directly on Floor 5 about midway between the stela and the steps of Feature 3, slightly south of the stela (Fig. 2).

Period. Phase D; Late Classic.

Grave type. Simple.

Age, sex. Adult male, 50 plus.

Position. Flexed. Body lay on right side, northwest-southeast with head at the southeast, facing east. The arms were tightly flexed close to the body with the hands close to the nose and under the jaw. The legs were very tightly flexed with the heels close to the acetabulum. The body rested directly on the floor and the fill was packed tightly around it. Primary burial.

Furniture. No offering was found.

Skeletal material. Skull: sutures are closed and partly obliterated. There is no sign of deformation, the slight occipital flattening being considered normal. The lower jaw contained one canine and two pre-molars; all of the molars were gone and the cavities had been absorbed. In the upper jaw all the teeth were gone except one canine.

Dr. Goff noted that the right tibia was bowed with pronounced hypertrophy which might indicate Paget's disease or osteitis or syphilis. This could be determined by X-ray. Both of the femora looked normal but the left tibia was also bowed, though without the hypertrophy of the right one.

Comment. Except for the fairly casual arrangement of the limestone blocks on and over the body, no definite grave was prepared. However, since the body lies directly on the floor, it seems to have been buried with a little more attention than Burial 3 (see below), which was put down as the fill was being loaded in. No offerings were associated; the individual was thus probably socially unimportant and may have died at the time that it was decided to put in the fill of Phase D. Burial 3 also seems to indicate a natural death that was just included in the fill. Neither Burial 2 nor 3 should be considered dedicatory, that is, sacrificial, in any way, though they are certainly contemporaneous. But one is lying on the floor and one is included nearby in the fill, and neither has any prepared grave, or offerings, nor do they show signs of mutilation.

BURIAL 3
(Figs. 2 and 10)

Location. Stela 23 group, Lot 15, along the northeast side of Feature 3, 1.50m. north of the steps, in line with the lowest step and more or less on the same level as the tread of that step.

Period. Phase D; very definitely included in the fill and not intrusive into it. Late Classic.

Grave type. Simple.

Age, sex. Young, about 15, male or female.

Position. Flexed. The body lay north-south with the head to the north facing east. It was tightly flexed on its left side. The arms were close to the body with the hands over the forehead. The legs were also very tightly flexed with the heels close to the pelvis. Primary burial. The body and head had been partly covered (intentionally?) by three flat slabs. One of these lay over the face but did not cover the entire skull.

Furniture. The small carved calcite (?) object in Fig. 16 is the only surely associated item. Several small pieces of stucco and a few sherds and obsidian flake-blade fragments occurred with the bones but seem to have been elements in the fill rather than fragments of offerings. The stone object lay within the lower jaw, as did four teeth which had fallen from the upper jaw. At first glance, the stone looked like a tooth; it was truncated-pyramidal in shape with a rounded groove in the broad end and shallow oval depressions on each side (see under "Phase D, Artifacts").

Skeletal material. The bones were in very poor condition, much broken by rootlets and roots. The feet and condyles of the lower leg bones had been accidentally cut away in the initial trenching of the area. The skeleton was that of a small and therefore presumably young person. Only a very small fragment of the pelvis was recoverable, as well as some ribs, but no definite traces of the vertebral column could be located. The articular ends of all the long bones were in very poor condition and could not be recovered.

The lower jaw was by far the most interesting part of this individual. It was small and infantile in form (the chin was not well defined) with a few milk teeth still in place and unerupted molars. Dr. Goff examined this remarkable mandible later and noted that it showed nutritional underdevelopment as indicated by the persistent milk dentition and the unerupted and impacted molars.

Comment. This individual, though probably adolescent, was suffering from nutritional underdevelopment and most probably died naturally. With an infantile jaw, this person must have had an unusual appearance. At present the carved calcite object is unique both as an item and as a funerary piece, particularly since its position strongly points to intentional placement in the mouth after death. Comparable placement of an object, though usually of jade, has been noted elsewhere in the lowlands (e. g., Piedras Negras and Uaxactun).

BURIAL 4
(Figs. 2 and 3)

Location. Stela 23 group, Lot 22, beneath Floor 1, close to and parallel to west edge of Burial 1 pit; 7.20m. below datum.

Period. Phase D. In upper portion of Phase D fill and just below projected level of Floor 2 which is definitely absent in this area. Position of lower leg and upper trunk bones, below unbro-

ken Floor 1, would seem to preclude intrusion in Phase C or later. Undercutting is conceivable but no evidence of it was found. A Phase D dating seems reasonable; Late Classic period.

Grave type. Simple.

Age, sex. Adult, sex indeterminate.

Position. Extended. Body oriented north and south, head to north, on back, with legs fully extended; definite articulation throughout. Left forearm bent so that left hand lay over right portion of pelvis. Primary burial.

Furniture. None encountered, but burial incompletely excavated (see below).

Skeletal material. Sexing and age determination were impossible. No noticeable pathology.

Comment. This burial was first encountered in preparation for excavating Burial 1; it was covered and left to a later time. Eventually it was removed within the limits of the west to east trenching operation on the level of Floor 5. The head and upper portion of the trunk including the upper bones are still in place.

CACHE 1

(Fig. 3)

Location. Stela 23 group, Lot 12, beneath re-used upper portion of stela. Top of cache 6.96 m. below datum; bottom 7.16 m. Rectangular, partially stone-lined cist.

Period. Deposition in Late Classic (local Phase A); age of contents uncertain.

Container. None.

Contents. 8 eccentric flints (Fig. 12); 9 eccentric obsidians (Fig. 11) and 1 fragment believed to be from an eccentric obsidian; mosaic elements consisting of 5 unifacially polished jadeite pieces; 6 mirror-surfaced hematite fragments, and 2 matched but fragmentary pyrite discs (diameter 1.3 cm.), decorated by drilling and grooving; 1 small piece of jadeite with one polished flat surface (mosaic element ?); 39 small, unfaceted, unpolished bits of jadeite; 1 piece of spondylus shell, fish-tail shaped; 1 small lump of spondylus with traces of incision; 5 complete single valves of bivalves (among them various *Arca occidentalis*) and 5 seemingly unrelated fragments. No indication that flints were deposited first, then obsidians, etc. Bits of jadeite mixed throughout. The matrix contained many small pieces of charcoal. Sherds and modeled stucco occurred nearby but are not to be considered part of the cache.

Comment. For reasons stated in our discussion of the Phase A data, this cache was evidently associated with the re-use of Stela 23, an event which is considered to pertain to Phase A. The question is whether the cache items represent workmanship contemporary with this re-use. One eccentric obsidian (Fig. 12, *e*, *e*') shows the remarkable feature of a drilled (?) and reamed, broad, tapered perforation. This is not the place for exhaustive comparative data, but we do believe that this is the first appearance of anything like this in the Classic lowlands. Perhaps more significant from a dating standpoint is the fact that the cache did not contain incised obsidian flakes, such as have occurred in previously excavated caches at Tikal and Uaxactun. Associations of incised obsidians with dated Tikal stelae indicate production from at least 9.14.0.0.0 (Stela 16) to 9.15.5.0.0

(Stela 21) and 9.15.13.0.0 (Stela 5). Evidently, incised obsidians and eccentric obsidians do not occur together. Incised obsidians have been used for cross-dating purposes by A. L. Smith (1950, p. 34, Table 5). Morley (1937–1938, vol. 1, p. 325) states that a cache beneath Stela 10 reputedly also contained incised obsidians. Proskouriakoff (1950) style-dates Stela 10 at 9.8.0.0.0 plus or minus 2 katuns. These points, taken together, would tend to undermine the cross-dating value of incised obsidians. However, Joyce (1932) illustrates a few eccentric obsidians as from Tikal; presumably these came from the Jolly, Herron and Robson excavations, which seem to have involved Stelae 5 and 10 (see Morley, *op. cit.*, p. 268). The date of Stela 5 is not inconsistent with the presence of incised obsidians in its cache. We tend to doubt that the Stela 10 cache produced incised obsidians; rather it might have contained the eccentric obsidians (and others unpublished?) recorded by Joyce. If so, we have a sequence in which eccentric obsidians are superseded by incised obsidians. The bearing of this possibility on the manufacture of the Cache 1 obsidians is obvious. However, we cannot be sure that the contents of this deposit were not derived from two or more earlier caches.

Two other eccentric items, one flint, the other obsidian, were found nearby; from the standpoints of style and workmanship these resemble those of Cache 1. The flint (serpentine in form) was found about 50 cm. west of Cache 1 and evidently among the very uppermost of the Phase D fill. We have mentioned earlier that this whole area west of Stela 23 appears to have been anciently disturbed. The eccentric obsidian appeared on a back-dirt pile from this general area. In our initial description of the cache (see under "Phase A") mention was made that the cist was stone-lined only on its north and east edges. Were the presumed west and south stones removed? If we assume that they were, then at least the eccentric flint could have been derived from Cache 1. Disturbance would also have had to have occurred during the laying of Floor 1 (in Phase C), relegating the cache to Phase D. In this connection, we also have a small spondylus figurine from well down in Phase D fill; similar figurines are relatively common cache items elsewhere.

Projected leveling indicates that the cache just underlies Floor 2. But the stela does not actually penetrate Floor 2 and, if our leveling is accurate, it sits considerably above it. Our conclusion is that, despite the temporal implications of possible cache disturbance in ancient times, a Phase A dating for the re-erection of Stela 23 seems most likely. The relationship of the stela to the cache decidedly suggests that the cache too was deposited in Phase A.

CACHE 2
(Figs. 2 and 3)

Location. Stela 23 group, Lot 28, 3 m. back from the broken edge of the top step of Feature 3 and just inside the definite east-west break of Floor 2 where it overlaps the original surface of Feature 3.

Period. The cache was covered by a more or less square block of limestone, 32 x 35 cm., which lay directly on Floor 2, suggesting that it was put in later than construction of Floor 2 (Phase D) and most likely at the time of laying Floor 1 (Phase C). Phase C is believed to be Late Classic.

Container. None.

Contents. The cache was in a pit excavated into the fill below Floor 2 and seems to have been lined with medium to small stones. The diameter is 30 x 35 cm. and the depth 25 cm. below Floor 2,

at which point traces of plaster were encountered. This may refer to Floor 3 (see under "Pre-Phase E").

The upper 15 cm. of the pit were filled with fist-sized rough stones packed rather tightly and fairly close together. Two bivalve halves (*Arca occidentalis*) were uncovered, one inverted more or less over the other, though they are not a pair. One tiny jadeite fragment was in the loose dirt filling the lower upturned shell. More shells (mostly *Arca occidentalis*), one a serpula (*Vermicularia spirata*), and another very small fragment of jadeite and an obsidian chip, completed the cache.

Comment. This cache was set into Floor 2 just prior to the construction of Floor 1. This can be demonstrated by the fact that the cover-stone lay on Floor 2 so that it presumably would not have been there when Floor 2 was in use, but rather was put on just before Floor 1 was laid down. The shells are exactly the same as those found in Cache 1 which, if indicating contemporaneity (an unproved method of cross-dating), would place the construction of Cache 2 in a later phase, specifically Phase A, to which Cache 1 has been assigned. It was not determined whether Floor 1, elusive and broken-up as it was, overlay the capstone directly. However, Floor 1 was noted in the section near the cache after Floor 2 had been cleared and the stone exposed, and most probably did extend over Cache 2. This really seems to date the offering as terminal Floor 2, just prior to the construction of Floor 1 (Phase C). Many more such caches must be located and the contents studied in order to determine the pattern of such offerings through time.

SUMMARY AND CONCLUSIONS

The brief excavations at the Stela 23 group yielded material spanning five distinct constructional phases. The whole sequence here has yet to be determined and the portions now known of it obviously require clarification. The sequence at present begins with Floor 5 and Feature 3; conditions below these constructions are unknown. Feature 3 can at present be described only as a raised, plastered area fronted by a completely projecting, deep-treaded stairway. The feature is presumably a substructure but as yet this cannot be proved. Nor do we know definitely the associations of Floor 5 which served as the base-surface of Feature 3. Noteworthy are the steep slope of the floor to the east and the strange mosaics impressed in its surface. The carving on the Stela 23 fragment is Early Classic but there is no evidence that the whole monument was originally set in Floor 5 or Feature 3, or in later construction in this particular small area. On the basis of what was excavated, there is nothing that might preclude Feature 3 from having been constructed in Early Classic times.

At some point these constructions of Phase E were abandoned. If Feature 3 supported a higher construction in the immediate area of our excavations, it was leveled completely or nearly so. The numerous pieces of modeled snd polychrome stucco ornamentation found in the Phase D fill indicate destruction of an Early Classic structure. But whether Feature 3 supported that structure has not been determined by this past season's work. At any rate, the plaza area east of the feature was filled with building debris to a level about that of the top surface of Feature 3. Just prior to starting this filling operation, a fairly old man was buried in a flexed position on Floor 5. Midway in the work of filling, what must have been a pathetic looking adolescent was also flexed and buried in the debris; the rarely discovered but well-documented custom of placing an object of value in the mouth of the deceased occurred in the case of this person. Strange concentrations of obsidian and flint material were placed in the upper portion of this dense Phase D fill.

There is good evidence that the original plan had been to tear down Feature 3 to approximately the level of the second tread of its stairway. But, as described in our analysis of Phase D, this work, once begun, was halted. The destroyed portion was refilled. Floor 2 was then laid, sealing the fill above Floor 5 as well as the mistakenly mutilated portion of the top surface of Feature 3. The still intact portion of that surface was evidently fused with the newly laid surface, Floor 2. The limits and architectural relationships of Floor 2 are completely unknown.

In preparation to laying Floor 1 (Phase C), a cache consisting of little more than Atlantic sea shells was placed in a hole dug through Floor 2; the cache was covered by a stone. As is true of the earlier Floor 2, the extent and associations of this new surface could not be determined this season. Because Floor 1 appeared to run under Feature 2, certainly under its stairway, it would seem to predate it. Although Floor 1 is believed to be earlier than Feature 2, it served as its plaza. Floor 2 was probably lost before the setting of Floor 1; it will be recalled that Floor 2 was not encountered below the still intact remains of Floor 1 beneath the fill of Feature 1. Feature 2, a pyramidal temple built in Phase B (Late Classic), had perhaps fallen into disuse with the construction of Feature 1, a crudely built platform that overlaps, in part, Feature 2. The pos-

sibility of stone robbing was evidenced by veneer slabs in the hearting of Feature 1 and their presence in the north face of this feature where they are set in mud mortar.

The building of Feature 1 may well have been motivated by the death of an elderly crippled man (Burial 1). His tomb was a crypt sunk through Floor 1 down to the much older Floor 5. A relatively new pot and one presumably retained for some time were buried with him. The possibility of his having been interred in a seated position, perhaps in a bundle, has been noted. The association of Burial 1 and Feature 1 is based on the continuity of the respective fills.

Stela 23 was the reason for our excavation. But many aspects of it still remain obscure. For various reasons it is believed that the stela fragment was re-used at the time of building Feature 1. Cache 1 is interpreted as having been set with the stela fragment but its contents very likely are of much older date. Whether the cache and intact stela originally belonged together at some other location one cannot say, but that possibility does of course exist. In this connection, Stela 25 (see Tikal Report No. 4) may be significant. Found lying on the present surface a few hundred meters from Stela 23, it too consisted of only a mutilated upper portion. It was close to a group of mounds, but its position suggests abandonment in the process of being transported for re-use elsewhere. The Stela 23 fragment may also have been moved from its original location. In this case, its original votive deposit conceivably was brought along for reburial. The surprising thing is that a cache actually was placed beneath it on its re-erection.

The following phenomena suggest terminal activity in this group, and thus at Tikal in general: Feature 1's re-use of earlier but late-type veneer stones, its superficial position, the inclusion of a possibly very late type of censer in its fill, the evidently quick collapse of the earlier Feature 2 following the abandonment of Feature 1, the use of ladle incensarios and carved Fine Orange pottery during the time of Feature 1's use, and the decadent implications of the use of an apparently mutilated upper portion of a stela that must have lost much of its original significance.

These suggestions and facts hint at an era critical in Peten Classic culture development and eventual collapse. Until now, evidence of terminal activity has been restricted to inferences derived from little more than a few intentionally smashed thrones (Piedras Negras) and an unfinished building (Uaxactun). It is our feeling that the re-erection of Stela 23, in fragmentary and apparently mutilated condition, could not have occurred until after cessation of carving and erecting new monuments. The Main Plaza area contains various features that point to resetting portions and atypical positioning of whole monuments, all of the same general period as Stela 23 (see Tikal Report No. 3). It is difficult to believe that these strange happenings took place during an era manifesting magnificent Late Classic monuments and a structure like Temple I. One possibility is that this phenomenon of re-use of stelae, whole and fragmentary, occurred during the local early hiatus in inscriptions. But our assignment of Stela 23 to Phase A (surely near the close of the Late Classic period) is contradictory, assuming that this practice was simultaneous throughout Tikal. One suspects that this phenomenon of resetting took place after the erection of the latest dated Tikal monument; the latest now known is Stela 11 with the date of 10.2.0.0.0.

We conclude, then, that Stela 23 was likely reset after 10.2.0.0.0. A thorough study of the Phase A and late surface material may aid in giving an upper date limit to this re-use. But we are most puzzled as to when Stela 23 was actually broken up.

The value of the Stela 23 group lies in its first having evidenced an apparently long and relatively complex sequence. Many leads remain to be followed. It further provided important insights into terminal Late Classic life at the site as a whole. The collapse of Tikal and of all of Classic

Maya ceremonialism is a prime problem.

The excavations, moreover, allow some basis for a starting evaluation of Tikal beyond the long-known but still-to-be-excavated ceremonial nucleus. Briefly, in what ways did a small peripheral group like this function? A half-hour walk brings one to the Main Plaza and the center of the site. There are many such minor mound groupings about Tikal. One possible explanation is that, administratively and ritually they served small aggregations of peripheral residents and visitors. Dependent as they were on the priests and power of the great central temples and palaces, these small ceremonial units may nevertheless have been to a certain degree autonomous and self- contained. The modern equivalent is the *barrio*.

Although we can speculate along these lines, a great deal of work will be needed before we can be sure of how a group like that of Stela 23 truly functioned. Our mapping operation perhaps will disclose the presence of associated house-mounds. Then one might undertake a quite thorough study of the whole group—its temples, palaces, floors, and dependent domestic structures.

In preparation, it would be advisable to follow out the five floors found to date, to define and trench Features 1 and 3, and to carry work to bedrock over a wide area. Pre-Classic remains, undetected in the recent excavations, should exist somewhere at Tikal; the general area of the Stela 23 group might be investigated in view of the two Early Classic stelae found there this past season (Stelae 23 and 25). Whatever work is done there will help guide excavations in the vastly more intricate central portion of Tikal.

REFERENCES

Gann, T. W. F.
1934 Changes in the Maya Censer from the Earliest to the Latest Times. *Proceedings XXIVth International Congress Americanists*, pp. 51–54. Hamburg.

Joyce, T. A.
1932 The "Eccentric Flints" of Central America. *Journal Royal Anthropological Institute*, Vol. 63, pp. xv-xxv. London.

Kidder, A. V., J. D. Jennings, and E. M. Shook
1946 Excavations at Kaminaljuyu, Guatemala. *Carnegie Institution of Washington, Publication* 561. Washington.

Morley, S. G.
1937–1938
The Inscriptions of Peten. *Carnegie Institution of Washington, Publication* 437. Washington.

Proskouriakoff, T.
1946 An Album of Maya Architecture. *Carnegie Institution of Washington, Publication* 558. Washington.

1950 A Study of Classic Maya Sculpture. *Carnegie Institution of Washington, Publication* 593. Washington.

Ricketson, O. G., Jr., and E. B. Ricketson
1937 Uaxactun, Guatemala: Group E—1926–1931. *Carnegie Institution of Washington, Publication* 477. Washington.

Shook, E. M.
1951 Investigaciones Arqueologicas en las Ruinas de Tikal, Departamento de El Petén, Guatemala. *Antropologia e Historia de Guatemala*, Vol. 3, No. 1, pp. 9–32. Guatemala.

Smith, A. L.
1950 Uaxactun, Guatemala: Excavations of 1931–1937. *Carnegie Institution of Washington, Publication* 588. Washington.

Smith, R. E.
1944 Archaeological Specimens from Guatemala. *Carnegie Institution of Washington, Division of Historical Research, Notes on Middle American Archaeology and Ethnology*, No. 37. Cambridge.

1955 Ceramic Sequence at Uaxactun, Guatemala. *Middle American Research Institute, Tulane University, Publication* No. 20. New Orleans.

Thompson, J. E. S.
1931 Archaeological Investigations in the Southern Cayo District, British Honduras. *Field Museum of Natural History, Anthropological Series*, Vol. 17, No. 3. Chicago.

1939 Excavations at San Jose, British Honduras. *Carnegie Institution of Washington, Publication* 506. Washington.

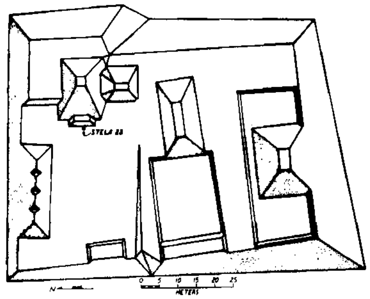


Fig. 1. Sketch plan of the Stela 23 group, comprising small platforms, sunken courts, temple mounds, and one mound (north side of raised plaza) probably a palace structure. This group eventually will be mapped accurately and related to the whole site.

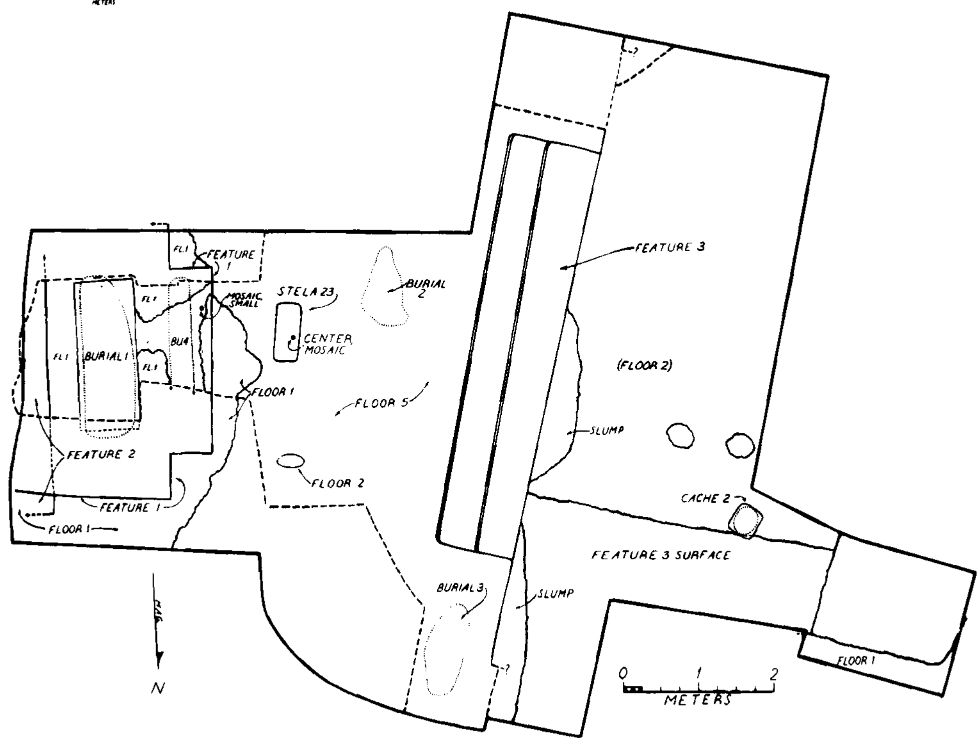


Fig. 2. Plan of the Stela 23 excavation. Primary limits of excavation are indicated by heavy line, while secondary limits (evident in Fig. 5) appear as heavy broken line.

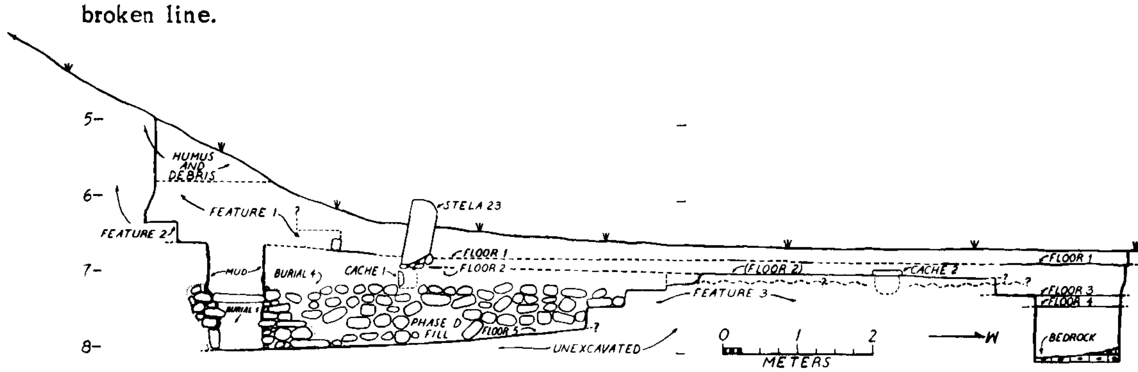


Fig. 3. Composite section of the Stela 23 excavation. Mound to left climbs to 71 cm. below datum with the summit about 10 m. east of Stela 23. Depths below datum given to left of section and meter marks also appear in the center of the section.

Fig. 4. View from west prior to excavation. Note degree to which stela fragment is buried. Mound top, in background, is 5.29 m. above top of stela. Half-meter stick to left of stela.

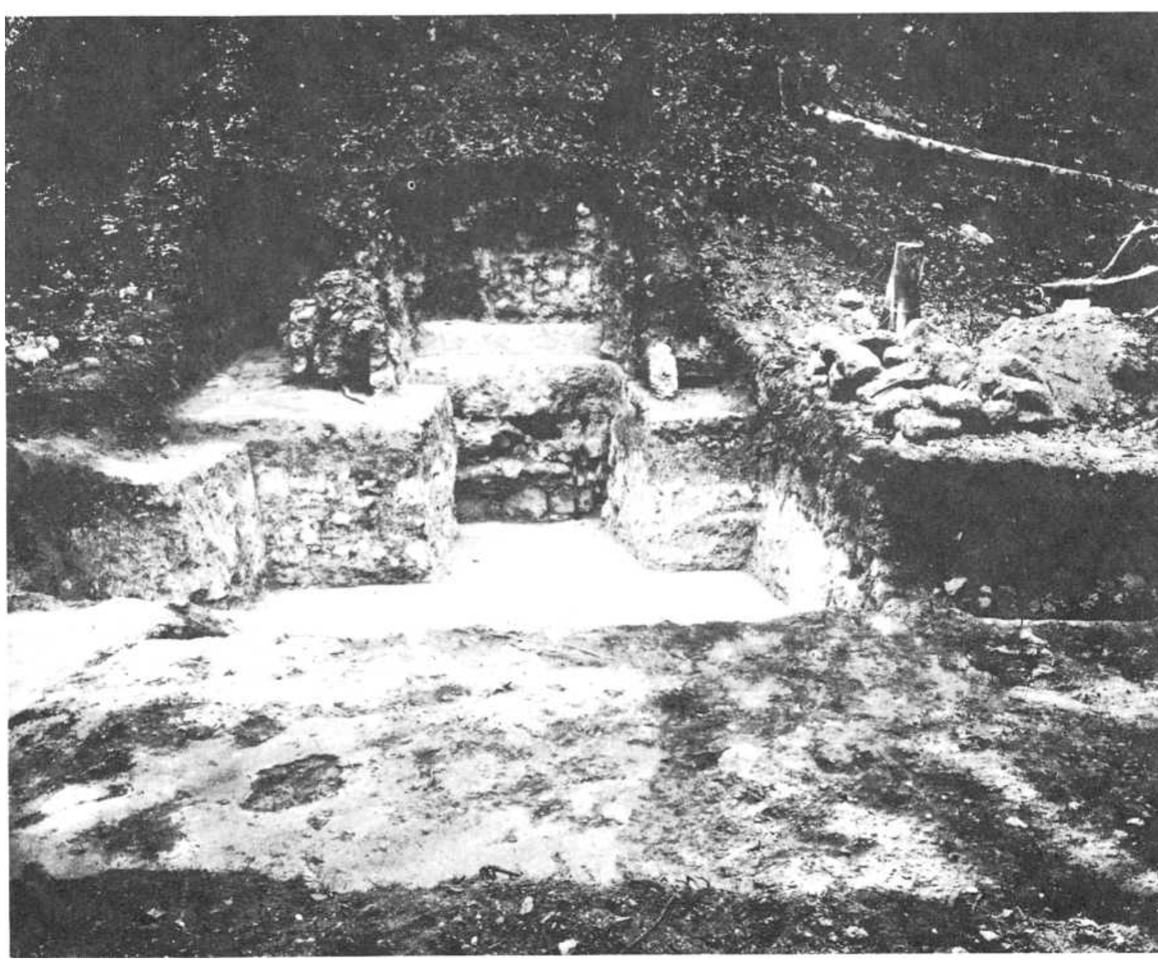


Fig. 5 . Excavation on completion, 1957 season. Looking east, with Feature 3 in foreground. Note surviving area of Floor 2 meeting plastered remaining portion of top of Feature 3, at extreme left in foreground. The lowest floor (Floor 5) extends east to east wall of crypt of Burial 1, the west wall having been removed in part by trench. At upper level, Feature 1 has been cut through to basal step of Feature 2, behind side of ancient pit dug for Burial 1. Both architectural features rest on Floor 1. Half-meter stick rests vertically on Floor 5 near southeast corner of Burial 1 crypt.

Fig. 6. Stairway of Feature 3, from north. Half-meter stick rests on Floor 5. South end of stairway subsequently excavated.

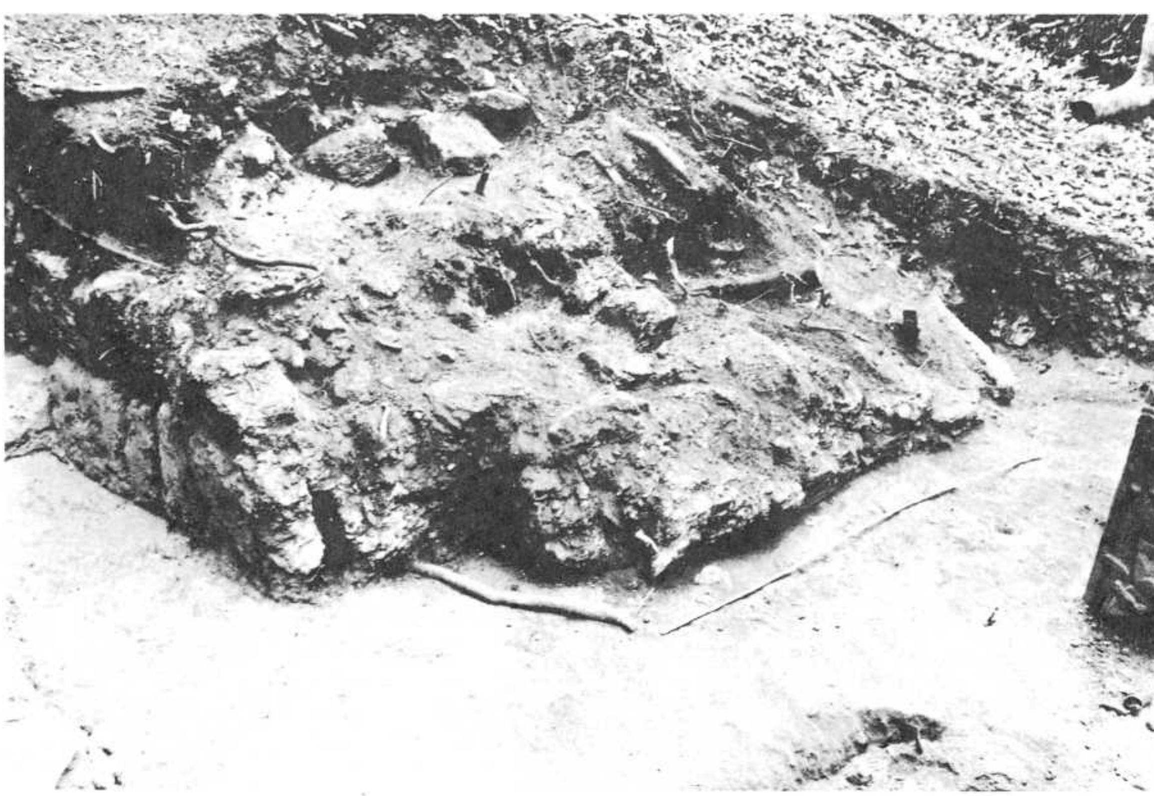


Fig. 7. Feature 1, from southwest. Stela 23 at far right. Overlap of north face of Feature 1 with basal step of Feature 2 evident at extreme left. 2–m. folding ruler and uncut root rest on patches of Floor 1. Humus partially cleared from summit of Feature 1, shown here prior to axial trench into it.

Fig. 8

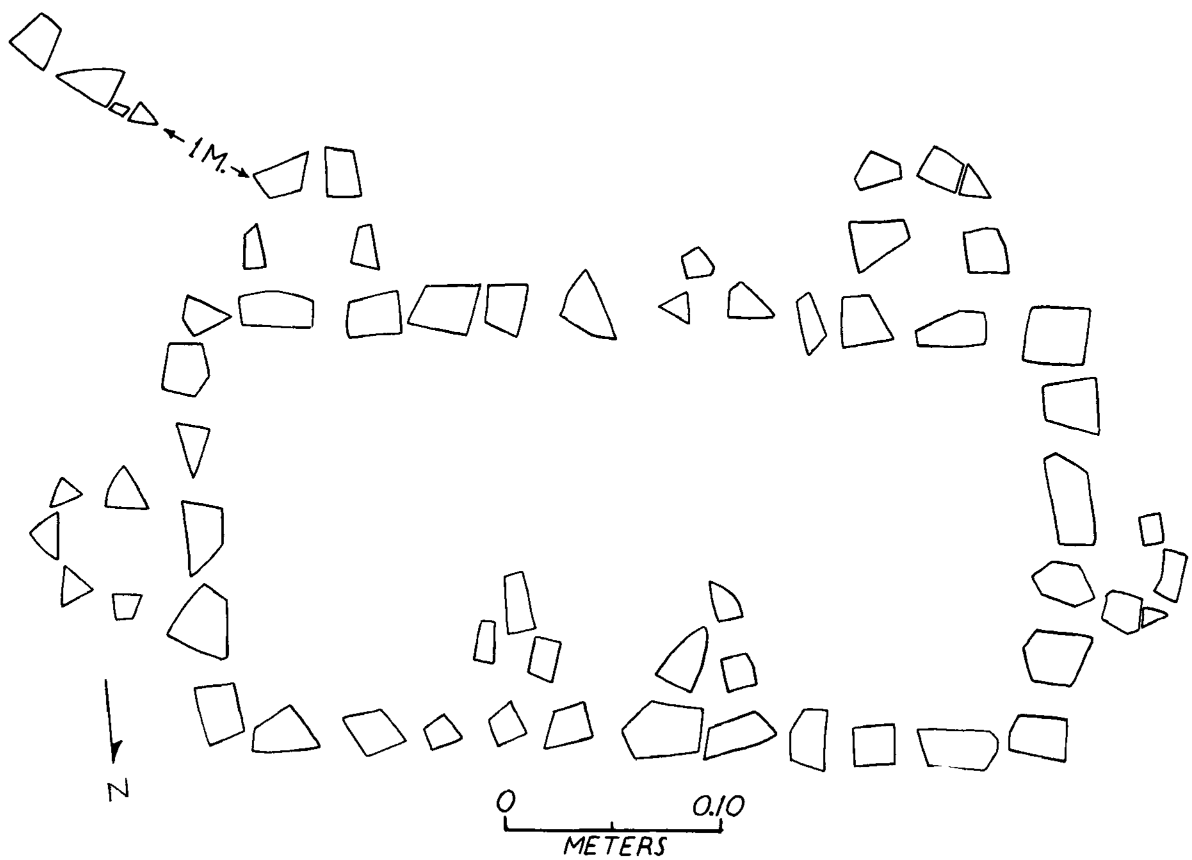


Fig. 8. Mosaics of shaped red-ware sherds impressed in surface of Floor 5. Positions of both indicated on plan in Fig. 2.

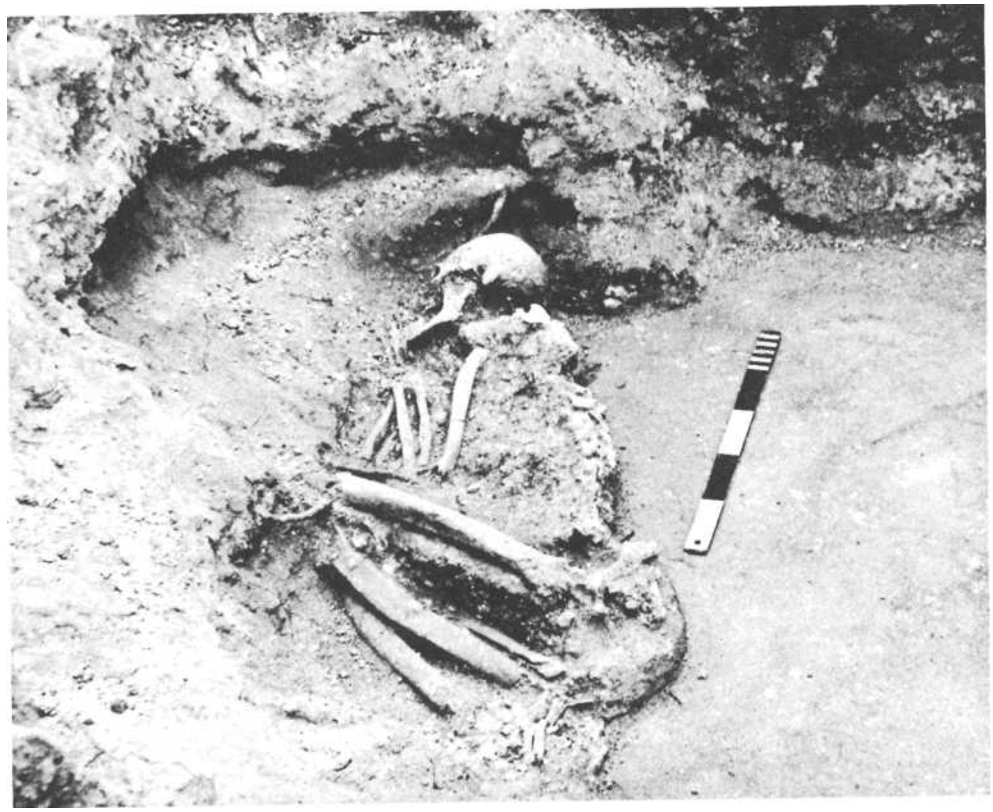


Fig. 9. Burial 2, resting directly on Floor 5 (exposed to right). Note flexed legs and arms with hands beneath mandible. Perforated end of half-meter stick points approximately north.

Fig. 10. Burial 3. Vertical view. Head smashed beneath unexcavated stone (to north). Folding ruler extended 85 cm. Legs closely flexed. In Phase D fill.

Fig. 11. Eccentric obsidians, field numbers 3A–33a–i. From Cache 1. Note remarkable perforation in *e* and *e'*. Scorpion apparently depicted in *a* and *b*. ½ scale.

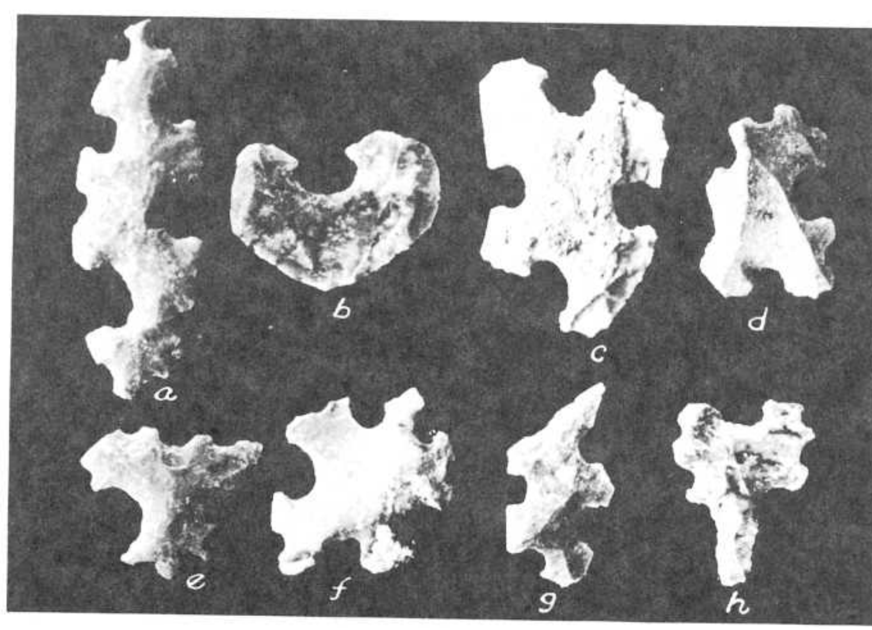


Fig. 12. Eccentric flints, field numbers 3A–35a–h. With obsidians in Fig. 11 in Cache 1. ½ scale.

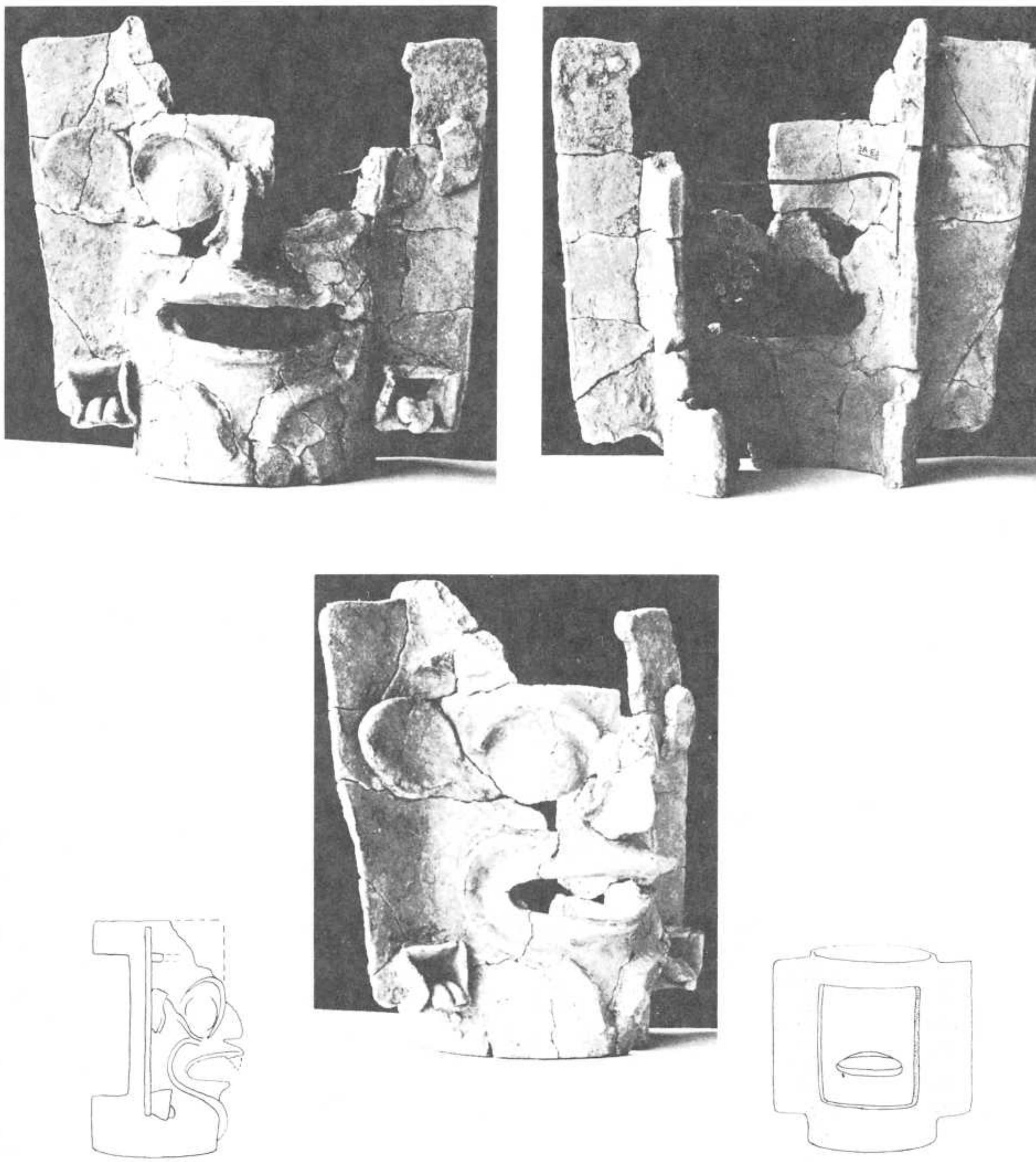


Fig. 13. Incensario from fill of Feature 1 (Phase A). Field number 3A–88. Open top, bottom, rear, and mouth. Unslipped buff paste. Traces of reddish brown painting on lower lip and underside of base; remainder of object seems to have been unpainted. Height of cylinder 18.5 cm.; maximum span across vertical flanges 19.4 cm. rectangular opening on rear 10.8 cm. high and 9 cm. wide (chord). No signs of wear or soot blackening.

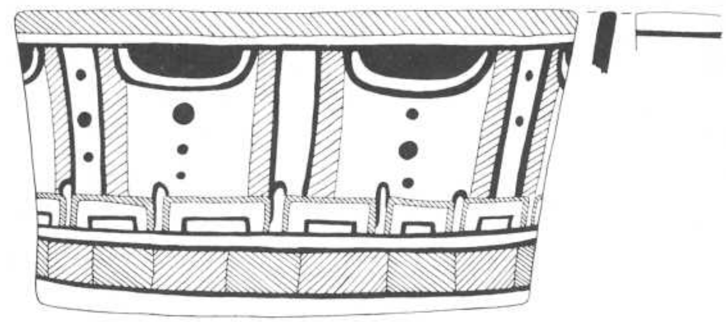


Fig. 14. Polychrome bowl, field number 3A–12. From Burial 1 (Phase A). Red-orange-and-black-on-cream; identified as Tepeu 2. Red is hatched from upper left to lower right; orange, upper right to lower left. Line drawing is partly reconstructed. Seven major panels. Note extreme wear of vessel in photograph. Height 8 cm., diameter 15.2 cm.

Fig. 15. Incurving red-ware bowl, field number 3A–13. From Burial 1 (Phase A). Identified as Tepeu 3. Patches of red slip. Flat base. Note fire blackening and uneven lip. Height 14 cm., maximum diameter 31.2 cm.

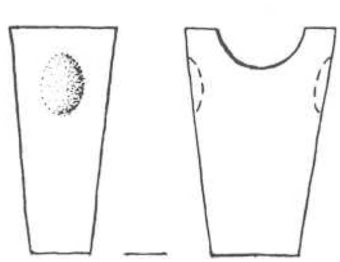


Fig. 16. Small problematic calcite (?) object from mouth of skeleton of Burial 3 (Phase D). Lost prior to full recording. Drawing accurate in all details though dimensions may be slightly inaccurate. 1.5 cm. high.

TIKAL REPORT NO. 3

THE PROBLEM OF ABNORMAL STELA PLACEMENTS AT TIKAL AND ELSEWHERE

Linton Satterthwaite

CONTENTS

INTRODUCTION. . . . 65

Citations 65

CHECKLISTS OF UNUSUAL SITUATIONS INVOLVING MONUMENTS AND FRAGMENTS . . . 67

Reasons for absence of fragments at locus of known fragments 67

Types of ancient re-use of carved monuments and fragments 68

Types of ancient fragmentation of carved monuments 59

Types of ancient modifications of carved monuments and fragments 59

ABNORMAL RESETTINGS OF STELAE: A COMPLEX? 71

Introduction 71

Abnormal attitudes toward carved surfaces 71

Summary of data on certain abnormal stela resettings 72

Normal features of the abnormal resettings 73

Breakage 73

Mutilations 73

Distances by which fragments were moved 74

Dating the resettings at Tikal, Yaxha, and Caracol 75

NOTES ON SEVEN TIKAL STELAE WITH MISSING TOP OR BOTTOM FRAGMENTS 77

Stela 1 77

Stela 2 78

Stela 12 78

Stela 14 79

Stela 17 80

Stela 18 81

Stela 25 82

REFERENCES 83

INTRODUCTION

The 1957 season at Tikal revealed a highly abnormal feature in the setting-up of Stela 23 (Coe and Broman, Tikal Report No. 2). Everything was as one might expect, except for the surprising fact that the lower part of the carving, together with the plain butt, was missing. A top fragment only had been set up just as if it were a complete stela. The next new find, Stela 25, was also a top fragment only, not found erect, but obviously reshaped for resetting (Shook 1957, p. 45). A survey of previously known Tikal stelae shows that large top or bottom portions of five others are missing, as of the present. Resetting of fragments obviously should be kept in mind as we excavate at their locations.

It seems desirable to take stock of all unusual situations which might be encountered, as well as to compare our stela-top resettings at Tikal with a very few known to have been found elsewhere.

The first section of this paper is a series of partly overlapping checklists of unusual situations in general. In most cases an example or two is noted, and there is a very brief comment following each list.

The second section deals in detail with those re-uses of stelae or stela fragments which seem to be not merely unusual, but abnormal. Here are comparisons, and the question is raised whether certain types of resettings may not belong in a single wide-spread complex, of which re-erection of stela tops was the most common expression. The question of dating it in the Central Peten–British Honduras region is given attention, as well as some other factors.

The whole paper is designed to give background for future excavations in the vicinity of those Tikal stelae where resettings may have been involved. It is, of course, important to recognize any additional ones as ancient cultural phenomena. It is also important for us to know whether a given monument or fragment was moved in either ancient or modern times, with or without resetting. Its value as a dating control on associated architecture, ceramics, caches, etc., depends on our knowledge of such movements, if any.

Looking forward to future excavations specifically, the final third section is a series of factual notes on the past and present situations at the locations of seven early-period stelae, where movement of large fragments may be suspected.

CITATIONS

In dealing with Peten monuments one must constantly cite information in Morley 1937–38, and use is made of Maler 1908 and 1911. To avoid constant interruptions, citations of these are omitted. See special notes under the appropriate titles of the bibliography. When data appear on monuments at Piedras Negras or Caracol without citation, these may be understood to come from field records

of work of the University Museum at those sites, for which the present writer is responsible. There is a full account of Piedras Negras Throne 1 in Satterthwaite 1935, and some reporting on Caracol Stela 3 in Satterthwaite 1954; evidence of the modern movement of fragments of Altar 6, Tikal, appears in Satterthwaite 1956. Some utilized facts on Tikal monuments as of the present are in the writer's field notes made during a three-week visit in 1957.

CHECKLISTS OF UNUSUAL SITUATIONS

INVOLVING MONUMENTS AND FRAGMENTS

REASONS FOR ABSENCE OF FRAGMENTS AT LOCUS OF KNOWN FRAGMENTS

(a) Insufficient search
  Insufficient area well bushed and carefully searched
  Insufficient excavation to base-surface level
    Old surface hidden by washed-in soil
      By fallen architectural debris
      By ancient raising of floor-level
(b) Ancient movement of fragments to or from locus of known fragments for some special purpose (practical or ceremonial)
(c) Ancient scattering of fragments (in expressing hostility ?)
(d) Modern movement of fragments
      By explorers in digging, photography, etc.
      By explorers or local inhabitants as specimens or for some practical purpose
(e) "Disintegration" (extreme fragmentation by natural destructive agencies and/or weathering so that fragments are not recognizable as such)

EXAMPLES

(a) At Caracol the butt of Stela 10 showed *in situ*; the altar and the rest of this large stela were hidden just below a flat plaza surface unencumbered by debris. The bulk of the stela was first thought to be missing and the altar was unsuspected.
(b) The two halves of Caracol Stela 3 were found 214 m. apart (see later in this report).
(c) Scatterings are noted under (k) of the next check-list; as to scattering of fragments of Piedras Negras Throne 1 at least, hostility to the hierarchy was probably involved.
(d) Two halves (upper and lower) of Tikal Altar 6 were moved in modern times, sufficiently to cause an incorrect inference that there were two altars before Stela 19.
(e) Complete disintegration of a large upper portion of Tikal Stela 14 was postulated by Morley.

COMMENT

Scattering of carved fragments about the latest ancient surface is especially interesting because it suggests violence at the end of the major occupation. Postulations of complete disintegration of large portions of monuments should be viewed with initial skepticism unless some special evidence suggests it. See under (a) above. If a large part is really missing, other explanations need to be considered, such as movement and resetting of large fragments (see later in this report). The really complete disintegration of large portions of monuments , so as to leave no trace, seems inherently improbable.

TYPES OF ANCIENT RE-USE OF CARVED MONUMENTS AND FRAGMENTS

For new or modified ceremonial purpose:

(a) Simple re-erection in normal manner at new location
(b) Conversion of carved to plain monument, with or without resetting
(c) Re-erection implied by abnormal positioning
(d) Re-erection of large top fragment of stela
(e) Re-erection of large bottom fragment of stela (?)
(f) Stela fragment reshaped to serve as altar
(g) Monument or fragment "cached" below floor (?)

For some practical purpose:

(h) Re-use as building material (in walls, steps, fill, etc.)
(i) Re-use for some non-architectural purpose (?)

Discarded:

(j) On dump (?)
(k) Fragments scattered on ancient surface
(l) Complete monument or large fragment abandoned after partial movement toward intended new location

EXAMPLES

(a) Ricketson infers resetting of Uaxactun Stelae 18 and 19 from dates and floor association with other dated stelae.

(b) He shows conclusively that Uaxactun Stela 21 was trimmed down to plainness, and re-erected.

(c) Tikal Stela 4 was found erect, but upside-down.

(d) Tikal Stela 23, Yaxha Stelae 1 and 5, and Caracol Stela 3 were found as erect top fragments, the bottom portions missing or elsewhere.

(e) No definitely established resetting of a bottom fragment has been reported, but it is suspected in case of Tikal Stela 14 (see later in this report).

(f) A fragment of Uaxactun Stela 10 and a top fragment of Uolantun Stela 1 were reworked to round altar form.

(g) Piedras Negras Miscl. Sculptured Stone 1 is half of an inscribed portable altar found among normal caches below a temple floor.

(h) Two halves of Piedras Negras "Lintel" 12 were re-used in a late temple wall; Uaxactun Stela 25 is known as a fragment from fill of a late (Vault IIf) structure; carved fragments came from Phase D fill in vicinity of Tikal Stela 23.

(i) A Tikal fragment, unnumbered but probably from a carved stela, was found at Tikal in 1957, reshaped as a metate (in ancient times?)

(k) At Caracol, Stone Groups 46, 48, and 50 were scattered about the surface; parts of the broken-up Throne 1 at Piedras Negras were scattered outside the building (see below).

(l) At Piedras Negras a plain stela or very large lintel, perhaps not finished, was left in the river bed; the top fragment of Tikal Stela 25 and the bottom half of Caracol Stela 3 may have been abandoned where found.

COMMENT

The examples under (h) are sufficient to establish breakage of early monuments before cessation of building activity, and at widely separated Classic Maya sites. The breakage of Throne 1 at Piedras Negras, with scattering of some fragments, was almost certainly later (see below).

TYPES OF ANCIENT FRAGMENTATION OF CARVED MONUMENTS

(a) Accidental (?)
(b) Intentional
  Breakage of merely obsolete monument (?)
  Breakage as expression of hostility to hierarchy

EXAMPLES

(a) This might occur, but evidence would be missing.

(b) Piedras Negras "Lintel" 12 was thick and unlikely to break accidentally; before the breakage the carving had been hidden under a layer of hard white plaster, distinct from the mortar of the wall in which the two halves were re-used. As a carving it seems to have been obsolete before the breakage. At the locus of Piedras Negras Throne 1 intentional ancient breakage was clearly established, as well as some scattering of fragments outside the building. It can be concluded from what was found and what was missing, from the extent of fragmentation, and from the positions of known fragments, that the episode was one of violence. There seems to have been a selection of parts of two priests' heads and part of the inscription for throwing outside the building. There is some evidence that the vaulting above the throne was purposely caused to fall.

COMMENT

There is little doubt that the "Lintel" 12 breakage preceded that of the Throne at Piedras Negras, and that if both were intentional the motivations were very different; presumably the throne destruction marked the end of monument-carving and major building activity—the end of the local Late Classic period. This was probably shortly after 9.19.0.0.0 (Altar 3).

TYPES OF ANCIENT MODIFICATIONS OF CARVED MONUMENTS AND FRAGMENTS

(a) Reshaping for re-use
(b) Mutilation of carved surface
  By fracturing
  By abrading ("smoothing") (?)
  By gouging (?)
(c) Incidental or accidental damage to carved surface, not intended

EXAMPLES

(a) With good reason, Shook interprets the squaring of the bottom of the Tikal Stela 25 fragment, and the smoothing of the remainder of the fractured surface, as in preparation for re-erection as a stela.

Uolantun Stela 1 and Uaxactun Stela 10 fragments were reshaped as altars. A presumed stela fragment at Tikal was reshaped as a metate; pending evidence on the question, the reshaping may have been in ancient times.

(b) Shook interprets fracturing of the front of Stela 25, and damage of the inscription on the back, as intentional mutilations, before re-erection. Proskouriakoff notes almost complete obliteration of the figure on Uaxactun Stela 26, definitely in Early Classic times.

COMMENT

Determining the existence and dating intentional damage to carved surfaces call for more caution than do reshapings, which are likely to be obvious. Weathering and/or incidental or accidental damage to carved surfaces are factors to be considered. The modifications of the Stela 25 fragment are discussed below (p. 74). The front of Tikal Stela 17 is supposed to show a human figure. Whether anything more than weathering contributes to difficulty in making it out is hard to say. For convenience it may be well to restrict "mutilation" to damage to the surface. In that restricted sense there was no mutilation of Throne 1 at Piedras Negras, though there was extreme fragmentation. On the other hand, human faces on the less fragile Piedras Negras stelae may have been mutilated at the same time, and with the same hostile intent.

ABNORMAL RESETTINGS OF STELAE: A COMPLEX?

INTRODUCTION

The first two situations in the foregoing checklist of re-uses are doubtless rare, but such re-erections of complete stelae seem logical manifestations within the fully functioning Classic tradition. An old carved stela may be saved by relocation, or an obsolete old stela may be used as raw material in fashioning a new plain one. Discovery of the twin-pyramid complex at Tikal makes it more obvious than ever that carved and plain stelae were variant contemporaneous manifestations of essentially the same thing (Shook, 1957, p. 48).

We are here concerned with the types of resettings listed as re-uses under (c), (d), and (e). These are abnormal, in that carving still shows but seems to have lost its full meaning. Either the stone is so placed that it cannot be properly viewed, or part of it is buried at the time of resetting, or part of it is entirely missing.

Eleven sure or suspected examples are tabulated below, four of them from Tikal. These do not represent a systematic check of the literature, but rather cases which the writer happens to have come across. They suffice to show that we may be dealing with a wide-spread phenomenon. The data for Coba are from Thompson, Pollock and Charlot, 1932, pp. 157–158 (Stela 13) and pp. 162–163 (Stela 17). The data in the tabulation are supplemented and commented upon under several subheadings.

ABNORMAL ATTITUDES TOWARD CARVED SURFACES

One may question whether resettings of complete stelae belong with those of fragments only. It is simplest to assume so, and hope for more evidence one way or the other. The inverted Tikal Stela 4 may have been accompanied by an inverted carved altar (Altar 1), reported by Maler as carved on the bottom, as found.

According to Morley, as of 1938 Stela 17 of Uaxactun and Stela 17 of Coba were the only known examples of backs turned away from associated structures. These backs were plain. It does not seem likely that this was a lazy man's method of converting a carved to a plain stela. It is not clear whether some of the carving was below floor, but since the monuments were complete there is no reason to suppose so.

Stela 14 of Tikal is discussed in some detail in the next section. Our 1957 examination required reclassifying what Morley thought was the front; it is the back, turned away from a close-at-hand terrace. The situation is complicated by the possibility that this may also be a case of resetting a fragment—a lower portion.

Resetting of top fragments seems well established in all six listed cases. Among these, only Tikal Stela 25 was found not erect, though with the butt elsewhere. Reshaping of its lower fractured end leaves no reasonable doubt that it had fallen at the locus of a resetting, or had been abandoned while in transit to or from such a locus (Shook, 1957, p. 45). It is illustrated in Satterthwaite, Tikal Report No. 4, Fig. 22; Coe and Broman give a full account of the Stela 23 situation in Tikal Report No. 2.

Among these six stela tops, substantial lower portions of the carving were missing, excepting only Coba Stela 13. Here the break seems to have been not far below the carving. The fractured end was reshaped to a round form, such as on late Classic Tikal Stela 20. At the sides the curve extends above the baseline of the design. Consequently, the lower 12 inches of the design were below floor.

It seems worth remarking that the two Coba stelae appear to be more or less stylistic twins,but they were found far apart, in different architectual groups.

SUMMARY OF DATA ON CERTAIN ABNORMAL STELA RESETTINGS

Complete stelae: abnormal positioning implying resetting				
(a)	Carving seen upside-down, partly buried			
	* *Tikal Stela 4*			Early Classic ?
(b)	Plain back turned away from associated structure			
	* *Uaxactun Stela 17*			Uncertain Date
	* *Coba Stela 17*			Uncertain Date
(c)	Glyphic back turned away from associated structure			
	* *Tikal Stela 14* (lower fragment only ?)			"Early Group"
Large fragments of stelae, reset or prepared for resetting				
(d)	Top fragments			
	* *Tikal Stela 23*	no reshaping	carving incomplete	9.3.16.8.4 +
	Tikal Stela 25	reshaped base	" "	9.4.3.0.0
	* *Yaxha Stela 1*		" "	Early Classic
	* *Yaxha Stela 5*		" "	9.16.0.0.0 ± 2 katuns
	* *Caracol Stela 3*	no reshaping	" "	9.9.10.0.0 (+?)
	* *Coba Stela 13*		carving partly buried	Uncertain Date
(e)	Bottom fragments ?			
	Uolantun Stela 1?			8.17.0.0.0 ± 2 katuns
	* *Tikal Stela 14 ?* (see above)			

Note: Starred stelae or fragments found erect. Dedicatory dates at right according to Proskouriakoff 1950, except Tikal Stelae 14, 23, 25, Caracol Stela 3, and Uaxactun Stela 17. Proskouriakoff's Early and Late Classic periods are separated by a hiatus from 9.5.0.0.0 to 9.8.0.0.0 (see Tikal Report No. 4)

When we postulate resetting of bottom fragments we are on less firm ground, as indicated by question marks in the tabulation. If, with full excavation, the hypothesis can be shown to apply to Tikal Stela 14, then it would seem quite likely for Uolantun Stela 1. There we must explain the presence of a non-erect, long lower section and a short upper section "nearby." This suggests breakage in a fall—but the upper section has been reshaped to altar form and presumably then served an erect lower portion only. Resetting, this time at the original locus, would "make sense." We at least have rather convincing evidence that a makeshift altar was used with a presumably erect lower fragment and one doubts if this was normal procedure in Classic Maya times.

NORMAL FEATURES OF THE ABNORMAL RESETTINGS

Apart from the unexpected factors just enumerated, these resettings seem to have followed the general Classic pattern for original settings. Tikal Stela 25 seems not to have been associated with a structure, but it may have been abandoned on the way to or from one. Caracol Stela 3 (top) was well out in a plaza, as were others in presumably original locations at this site. All others on our list were before specific structures, a common pattern. If we include Uolantun Stela 1, there are nine of these, of which three violate the rule that the front should be turned away from the structure. The others follow the rule, including the upside-down Tikal Stela 4, which was behind a carved round altar. It would appear that the resetters still had a feeling as to what was fitting, at least when resetting top fragments.

Tikal Stela 4, Tikal Stela 14, the two Yaxha stelae, and Uaxactun Stela 17 seem to have been grouped with others, carved or plain—another common Classic pattern.

Tikal Stela 23 was placed axially and over a cache, and apparently in connection with minor platform-building. Coba Stela 13 was set axially in a masonry shrine, though it is not stated that this was contemporary with the resetting.

Summarizing, where fragments only were used, this resulted in abnormally low stelae. Otherwise there seems to have been nothing abnormal in the reset results, apart from loss of part of the carving and/or the failure to display it properly.

BREAKAGE

If there is a resetting of a stela fragment, of course this follows a breaking. In understanding the motivation for the resetting, any evidence which dates or explains the breakage is important. Lacking it, it seems improbable that fragments were permitted to lie about the main architectural groups when they were fully functioning. Mere accidental breakages at such times must have been rare.

Throne 1 at Piedras Negras was intentionally smashed at the end of the Late Classic period. It was formed of thin slabs, and comparable fragmentation of stelae would have been much more laborious. However, intentional throwing down of stelae by undermining their foundations would not be difficult. Just as in natural falls, breakage into at least two fragments might result.

Possibly, careful study of the fractured bottoms of reset stelae found still erect might give some control on the length of time between breakage and resetting. The fractured surfaces of such stones should be comparatively unweathered if the interval was short.

MUTILATIONS

This term is here restricted to damage to carved surfaces, the intention being to deface them. If this happened in ancient times, we want to know it because it would indicate a changed attitude toward the hierarchy or—if in post-Classic times—to their then already ancient products. The problem

of recognizing mutilations in this restricted sense is complicated by various factors. Man-made modifications of sculptured surfaces might be incidental to some other purpose than the defacement itself, and accidental damage might occur in a fall, to say nothing of weathering, falling trees, and so on, after the forest took over.

The most obvious portion of a stela where mutilation might be expected is the principal human figure, and especially its face. Shook assumes such mutilation of Tikal Stela 23 at the time of its breakage and before its re-erection (1957, p. 45). Since the fragment was found upright, there is no way of proving that the defacement was not after the resetting. But the fragment of Stela 25 shows the same condition; it was found face down, and weathering had not caused the flaking off of the front surface while in this position. If it had, in this protected situation chips should have been found.

We still do not have definite proof of mutilation before resetting, but we have a reasonable suspicion of it. If this top fragment of Stela 25 had fallen from a reset position here, it could have been mutilated long after the resetting, but before the fall. But if, as may be suspected, this stone was abandoned on the way to a more suitable location for resetting, the defacement must have already occurred.

Shook also seems to postulate mutilation (in our sense) for the inscription on the exposed back of Stela 25. The effacements here appear to be definitely in addition to normal weathering only of the top four or five rows of glyphs (Tikal Report No 4, p. 113 and Fig. 23). The modifications below these rows involved laborious abrading which does not extend to the upper rows where one would expect intentional mutilation to begin. No such modifications appear anywhere on the inscription side of Stela 23. While those of Stela 25 are puzzling, they probably should not be classed as mutilations.

Assuming that some re-erected fragments may have been from previously mutilated stelae, there is no reason to suppose this was always the case. The upside-down face of Tikal Stela 4 is in good shape, as is a face on Yaxha Stela 1 (though it may not be of a principal figure). The face on Yaxha Stela 5 is damaged, but one suspects weathering, and this is probably the case with the upper portion of the face on Caracol Stela 3.

DISTANCES BY WHICH FRAGMENTS WERE MOVED

Until the discovery of the tops of Stelae 23 and 25, all known carved stelae of the early group at Tikal, whether complete or not, were on the Main Central Plaza or its north terrace, except two not more than about 150m. from it (Stela 15, more or less complete, and Stela 17, base missing). At Caracol the large base fragment of Stela 3 was found lying on the surface, 214m. from the erect top fragment, and at a somewhat lower level. If the base portion marks the original location, the top was moved more than 214 m. by a slightly circuitous route, partly up-grade; if not, a movement of the bottom portion, or the combined movements of the two halves, exceeded 214 m. It is possible that the Tikal Stela 17 top was moved a less distance from the Main Plaza, though that would have involved going down steep slopes.

Finding Stelae 23 and 25 fragments not very far apart, but very far removed from the Main Plaza, raises a certain presumption that there were two Tikal centers of original stela erection in the early period. But the Caracol situation suggests that those who reset large heavy fragments were ca-

pable of moving them any desired distance. Granting some motive, at Tikal it is conceivable that it might have led to dragging both Stelae 23 and 25 tops from the Main Plaza area to the lower locations beyond Temple VI at which they were found. Fragments which may be found anywhere, including the Main Plaza, should be tried for fit on all partly missing stelae, including these two.

DATING THE RESETTINGS AT TIKAL, YAXHA, AND CARACOL

These examples are selected as being the most definitely abnormal, and also as being within the Central Peten–British Honduras region. In these cases at least, we are probably dealing with resettings in response to a motivation which operated during a single not very long period.

Granting this, it seems reasonable to place this period as some unknown time after the latest satisfactory carving date involved–i. e., after 9.9.10.0.0 (+ ?) of Caracol Stela 3. If we apply this minimum dating at Tikal, it falls well into a second gap in the dated sequence, if this is accepted as from about 9.7.0.0.0 to 9.14.0.0.0 (Tikal Report No. 4, pp. 122–123). It does not fit very well with the following suggestion of Shook. Assuming that the breakage of Tikal Stelae 23 and 25 was due to violent action, he suggests that "this may have been responsible for the end of the Early Classic period and perhaps for the hiatus in the known sequence of inscriptions at Tikal" (1957, p. 45). Our minimum date for the breakage is after the first hiatus in the Tikal sequence (9.4.13.0.0–9.7.0.0.0) and nearly three katuns after the beginning of the second one. This sort of reasoning is suggestive, but certainly not conclusive.

Coe and Broman have since completed Tikal Report No. 2, in which they cite evidence for the re-erection of Stela 23 in a "Terminal Classic" period, after carving ceased with Stela 11 (10.2.0.0.0). If the resetting was preceded by intentional violent breakage, it might be argued that the breakage was at the end of the Late Classic period. This would be in line with what seems to have happened at Piedras Negras.

In the next section we provide special notes on Stelae 14 and 25, and also on five others where resetting needs to be considered. It is an interesting fact that all of these are early-period stelae. That is to say, they were carved before the second gap or "hiatus" in the dated sequence. So far as has been noted, the monuments carved after this gap are in better shape, with all large portions accounted for. The correlation of earliness of carving with known and potential resettings of fragments is in line with Shook's early breakage hypothesis, and doubtless suggested it.

The problems of dating fragment-resetting and the necessarily prior breakages are related, but evidence on one will not automatically solve the other. At present, neither can be taken as settled, even in a general "period" sense. One is puzzled. If the breakage was during Gap 2 (before 9.14.0.0.0) and resetting was after 10.2.0.0.0. where were the fragments during the 8-katun late period of carving? On the other hand, if both breakage and resetting were in a "Terminal Classic" period after 10.2.0.0.0. as a sort of feeble revival, why were no late stelae involved?

We must remember that the association of Stela 23 with late architecture and ceramics is of the sort which could have begun long after the re-erection, so far as stratigraphical proof is concerned. It need not have served with the latest construction only. Is it possible that there was Gap 2 breakage followed by resetting of fragments at the same time as freshly carved complete, late monuments were being erected? Such questions may be kept in mind when possible additional resettings are investigated, and further evidence on fragmentary early stelae is accumulated.

Perhaps we should not yet exclude the possibility that the breakage was due to natural causes after final abandonment, the resettings being due to a definitely post-Classic revival of the old pattern. Pollock, quoted by Thompson, may have had this in mind respecting Coba Stela 13: "Keeping in mind the early dates, but later architectural types, known to exist at Coba, these facts [indicating re-erection of a top fragment] cannot help but suggest that the stela was set up in its present position by a later people than the actual sculptors, perhaps as a venerable object rather than as a contemporaneous record."

NOTES ON SEVEN TIKAL STELAE

WITH MISSING TOP OR BOTTOM FRAGMENTS

At Tikal there is no doubt that large bottom and top portions of some stelae became separated because the top portion was moved for resetting. In the case of Stela 23 this was absolutely proved by extensive digging below the locus of a top fragment which was found still erect. It would not be safe at present to exclude the possibility that bottom portions may also have been moved from the original locations of the complete stelae, and re-erected. Hence, in those cases where a top or bottom fragment only is known, we have the problem of determining whether the complementary portion is really absent from the locus. So long as it may be, a resetting hypothesis is tenable, and we might find positive evidence for or against it.

The hypothesis can be stated so as to cover three theoretically possible situations. A known top may have been brought to the locus for re-erection there. A known lower portion may be in its original location, the unknown top having been carried off for re-erection elsewhere. Or a known lower portion only may have been brought to the locus for re-erection there.

Stela 23 has been fully covered in Tikal Report No. 2. Stelae 14 and 25 were also included in the list of sure or possible resettings on p. 72, but received only brief attention. Adding them to Stelae 1, 2, 12, 17, and 18, there are seven Tikal stelae with large still-missing fragments, in addition to Stela 23, the top of which was found erect. Brief factual notes are here provided on these seven.

Excavation ought to add new information for all but Stela 25, which had been reshaped for resetting. It would be foolish to predict confirmation of the resetting hypothesis for all of the remaining six of this group. One may guess that it is especially likely to result in the cases of Stelae 12, 14, and 17. Where we may eliminate the idea by finding missing parts, those will be very welcome, for their own sakes.

Any new fragments of these stelae, at the known locations, are buried and likely to be well preserved. Additional dates might result, as might additional style-dating controls. Any small fragment which happens to fit a known monument may extend its dating control to floors and their contents, through its stratigraphic position. If there was breakage followed by re-erection of a large fragment, precise positions of other fragments, and their weathered or fresh conditions, might give a clue to the time and manner of the breakage.

The notes on the seven stelae follow, in order of the stela numeration.

STELA 1.

Maler thought the missing top fragment was broken off by a falling tree, and had been carried

off in modern times. Even if in one piece, its shape and comparatively small size raise doubt that it would have been re-erected. The butt and most of the stela was found in front of Str. 36 and behind Str. 33 on the North Acropolis, "almost completely buried." It now lies at an angle in what appears to be the much-fallen-in remains of Maler's pit. It is not stated, but it is implied, that this pit, extending 4 m. on every side of the stela, reached the base surface everywhere. That surface is now masked by debris. The account leaves a doubt in my mind as to whether this stone was found erect, partly erect, or horizontal. Maler knew (or assumed?) that the stone faced south, as does Str. 36 (Maler, 1911, pp. 63–64). (See also under Stela 2, below.)

STELA 2.

Found by Maler while digging for his photography of Stela 1. The known top portion was found "not far" to the east of Stela 1, "lying deeply buried under debris"—i. e., not erect. The missing portion must be 1 m. or so high, *exclusive* of the plain butt. Maler thought that breakage was ancient in this case, and that the top had been "preserved as a memento" at the locus of original erection. If ever re-erected, it would have stood somewhat higher than did the top fragment of Stela 23. His opinion that Stelae 1 and 2 were both originally erected here is confirmed by striking similarities in the two designs and by the fact that the human figures on the fronts would have faced each other if set up as a pair, with Stela 2 to the east.

One is inclined to suspect that a major job of debris removal would result in finding the missing portion of Stela 2, and possibly also that of Stela 1, rather than produce confirmation of Maler's belief that his search was sufficiently extensive. The Proskouriakoff style datings are 9.0.0.0.0 ± 2 katuns for Stela 1, and 9.3.10.0.0 ± 2 katuns for Stela 2; both fragments are, for the most part, very well preserved. Finding the missing parts might provide especially important precise dedicatory dates, and would complete two examples of a highly unusual carved design arrangement, in which front and sides are treated as if they formed a single surface.

STELA 12.

Four carved pieces and twelve small fragments at present account for a large part of the bulk of a top portion. This apparently broke off along a single and approximately horizontal plane. The butt and an estimated 25 cms. or so of the lowest carved surfaces were entirely missing as of 1957, after thorough bushing. A sizable glyph-bearing fragment from near the top is also missing. The known fragments are now grouped with the two halves of a plain altar, some distance to the front of the base of the north terrace of the Main Plaza. (Two small fragments were cemented in place by Noble.) It seems probable that at least a more-or-less complete upper portion was here before natural destructive agencies took effect. The deep-relief human figure on the front of the largest fragment of this top portion was in very bad shape when found.

Maler's account is not so specific as one could desire. "Only the top with the much worn-away bunch of feathers appeared above ground, and gave evidence of the whole being much broken up and generally unpromising. Nevertheless, I decided to excavate it... the result of the rather difficult piece of work was a stela not very high ...The entire height or length of the stone is 150 cm. plus the broken-off lower portion measuring about ½ m." His measurement checks for the fragments of the top portion, as fitted in 1957. What is doubtful is whether he actually saw the

bottom portion. He did not know that it ought to show that columns of seven, not six, glyphs were on the original complete stone (see Tikal Report No. 4). What is further doubtful is whether what he surely saw (and moved for photography) was lying flat on the plaza, or erect or semi-erect in the debris of the North Terrace. In either case it still seems possible that the butt is still erect and buried there—particularly if a late plaza floor-raising had partially submerged the base of a stela originally erected here. Superficial examination of the still-standing Stela 10 on this plaza, and of Stela 3 on the North Terrace, suggests that floor-raising after stela erection may have occurred.

Maler labels the front as the south side, and the top of the front is what he saw before excavation. If erect or semi-erect in original location, this is what would be visible. If fallen forward onto the plaza, and if originally facing toward it in the normal orientation, the back should have been uppermost, the front invisible. Thus there seems to be a probability that the top fragment was erect or partially erect when found, whether we are dealing with an original erection of the complete monument or a re-erection of a top only. Excavation in the area, including removal of terrace debris, ought to clarify matters. One should be on the lookout for more fragments of the top, as well as of the butt, and for a cache which might have been present with either an original or a secondary erection.

There is some doubt whether the plain altar fragments really belong with Stela 12. Although Maler implies an altar for Stela 12 on his p. 33, Tozzer, mistakenly citing p. 34, reports inability to find all the altars mentioned (Tozzer, 1911, p. 119). He warns us that his map "shows the present position of the monoliths"—not necessarily the original associations in every case. Since Maler fails to mention an altar in describing either Stela 12 or 13, one suspects that it may belong with the not-far-distant Plain Stela A18. Morley's and Tozzer's maps do not agree in all respects, and a reappraisal of stela-altar associations in the area seems called for. With careful excavation supplementing an accurate plan of present positions some doubts may be eliminated. In the meantime there is some doubt, I think, whether any carved stela of the early group was originally provided with an altar.

Morley's dedicatory date of 9.4.13.0.0 ??? for Stela 12 has been confirmed by a fuller reading of properly fitted fragments (Tikal Report No. 4). The fitting required moving the westerly half of the altar a half-meter or so. The easterly altar-half and the largest stela fragment were not disturbed in 1957.

STELA 14.

This is known only as a still erect butt, with about 25 cm. of the inscription on the back, and small lower portions of human figures on the sides. The figures are assumed to have faced toward the front, which is entirely flaked off (Tikal Report No. 4, Fig. 19). Bushing is complete, and in 1957 (as in Maler's time) nothing of the upper portion (most of the stela) was in evidence. The butt is the easterly monument in the rear line before the North Terrace of the Main Central Plaza. Maler thought it was "perhaps a little in front of the line" formed by others. Accurate mapping will show whether a line joining Stela 10 and several plain stelae still *in situ* is fairly straight and runs significantly behind Stela 14, as he implied.

In addition to this possible difference in alignment, there are two other pecularities in the positioning of this butt, both of which suggest that, though it is a bottom, not a top fragment, it had

been reset. The first is the fact that it must be very close to the bottom of the North Terrace (when that is dug out), but it faces the terrace, not the plaza. Morley, not knowing the sides were carved, thought this butt was of a stela with the inscription on the front. He must have classified the sides and back as plain without digging them out.

The second definite peculiarity is the level at which this butt is set. I believe that careful leveling will show the base of the design as decidely higher than that of Stela 10. Excavation may show a raising of the floor level after erection of that still *in situ* complete stela, and before erection of this butt-portion of Stela 14. Yet one suspects that the dedicatory dates were not very far apart. The figures on the sides relate the Stela 14 fragment to those of Stelae 23 and 25, and suggest that the destroyed front face of Stela 14 showed a deep-relief human figure, as do both of those. Thus, indirectly, Stela 14 can be related stylistically to Stela 10, with its deep-relief figure, as well as to Stela 12, no longer in position. It can be argued that Stelae 10 and 14 probably belong fairly close chronologically, and were probably set up originally on the same floor. Of course, pending investigation by digging with accurate controls, we do not know how level the floor of Stela 10 may have been, and it is more than 25 m. from Stela 14 on Morley's map.

If in original location, the front of our Stela 14 butt should have been well preserved by debris and wash from the terrace, which covered it in 1957, instead of being completely flaked off. If re-erected as a base fragment, the back might have been turned to the front because the glyphic design there was still intact, the front being already destroyed—perhaps intentionaly mutilated. A late re-erection would be with relation to the latest floor as the base surface. Thus a hypothesis of re-erection of a lower portion of a stela seems tenable, pending further evidence.

The missing upper portion is estimated as about 1.50 m. high, based on the size of a surviving foot of the figure on the side, the width and thickness (80 by about 50 cms.), and the proportions of Stela 10. The latter is 93 cm. wide, 48 cm. thick. Morley considered that this large mass of Stela 14 had disappeared by disintegration. Maler made three guesses—that the top had been carried off, that it remains buried in terrace debris, or that it was consumed in milpa fires. Considering the height and thickness of the missing portion and the high-level setting, one doubts that excavation will confirm the second hypothesis. The third seems dubious because, though milpa fires seem to have caused extreme fragmentation of the nearby Stelae 6 and 7, on the terrace, they left many fragments, including large ones. None whatever were noted in the Museum's clean-up, with instructions to leave fragments where found, and it is quite clear that there were no identifiable fragments in earlier times. As of the present, it seems most probable that the top was carried off, or else that the butt only was brought to this location.

Morley dated the carving at 9.5.0.0.0 ?? on the basis of glyph style. Surely the figures on the sides link it to Stelae 23 and 25, hence to the early group. For further discussion, see Tikal Report No. 4.

STELA 17.

Without bushing it seemed clear in 1957 that the missing bottom fragment of this stela should be visible, unless it is erect but largely buried, a possibility considered for Stela 12. Here, however, we are on a flat level surface at a considerable distance from fallen debris to the south. Maler describes the large top fragment under the misprinted label "Stela 11" (1911, p. 90). Direc-

tions are assigned to the four faces, all carved; we are not told that it was standing, and Morley presumes it was "lying" on the "lower terrace on the southern slope of the north ravine." Outcroppings of natural rock are in the vicinity, but "broad terrace" would seem to be a fair description of the locus. In 1957 Shook discovered a fallen but complete small plain stela some meters distant, indicating that original erection of a carved one might have occurred here also. The location has not been mapped.

This stela top was mentioned in considering distances to which fragments may have been transported for re-erection. Excavation of a considerable area, but to moderate depth, should reveal the butt, or definitely prove that the top had been moved by some unknown distance. There is every reason to assume that modern movement has been for photography only, and small in amount. This is perhaps the easiest locus at which a high probability of re-erection in this part of the site might be established. However, careful digging is indicated, because of the possibility of a sub-stela cache not marked by an *in situ* butt. The dedicatory date of the stela is presumably some short time after 9.6.3.9.15, which appears once, perhaps twice, as Initial Series. Morley suggests 9.6.13.0.0 ?? This monument, considering the dedicatory date as the end of the current katun, 9.7.0.0.0, ends "Gap 1" and begins "Gap 2" in the carved stela sequence as discussed in Tikal Report No. 4, and referred to earlier in this paper.

STELA 18.

Like Stela 14, this is known as a lower portion only, but this time in three fragments. Morley describes the discovery by Rutherford. He says, "The base is *in situ*, 10.33 m. west of the western side of Stela 10, which was still standing in 1928." Since this is clearly not intended to be an accurate compass bearing, we are not told of the relationship to the North Terrace, except that it was in the row of monuments nearest to it. In 1957 the fragments were lying on the plaza surface in the general locality specified. A precise location and level seem to have been lost. One understands that there was at least one erect fragment.

In 1957 Shook noticed two carved fragments close to each other on the plaza surface, and he buried the small one near the larger, lest it be carried off. The larger fragment measures about 25 x 50 cms.; it was left at the spot, pending mapping—about 6½ paces south of the plain Stela A 11, and perhaps twice that distance from Morley's mapped position for Stela 18. The larger fragment is about the same thickness as one of those of Stela 18 (a glyphic split-off back fragment 13 cm. thick). On the other hand, the design of the Shook fragment looks as if it might have come from the front of Stela 18. Fitting might give an affirmative answer. It is not one of those illustrated by Morley.

There would seem to be some hope that excavation may show additional fragments of Stela 18 hidden under North Terrace debris; but we have a suggestion that there may have been a scattering of fragments of the missing upper portion. If that actually occurred, and in ancient times, controlled excavations on the north side of the plaza will probably demonstrate it, and may give stratigraphic evidence as to when the stela breakage occurred. It would not necessarily be confined to one monument. Shook recorded a third carved fragment reshaped to form a metate, at the site of a modern settlement between the Main Plaza and our modern camp. It also was left *in situ*, in 1957. The possibility of removal of easily transported fragments in modern times will need to be considered.

Morley assigned 8.19.0.0.0?? to this monument; Proskouriakoff's style-dating is 9.0.0.0.0 $\pm$ 2 katuns.

STELA 25.

The lower 50cms. or so of the design-bearing portion, plus the plain butt, is missing. The known top has lost a large wedge-shaped portion on the right side. Evidently the fragment was pointed on the bottom, and this point was cut off square (Tikal Report No. 4, Fig. 23). The rest of the long fractured surface was smoothed down. Both of these changes are what one would expect if such a fragment was to be re-erected as a stela. With the squared bottom it could be balanced without deeply burying the bottom of a rather short fragment, and most or even all of the smoothed-down side would be visible. Although none of the four surely re-erected stela tops reviewed earlier were reshaped, all could be so set that the fractures did not show. In this case, as noted earlier, without reworking, a ragged edge would have been visible.

This reshaping seems adequate evidence that Stela 25 had been re-erected, or was intended for re-erection, however one interprets other modifications discussed under "Mutilations" on pp. 73–74.

The location was about 500m. beyond Temple VI, on the road to Naranjo Aguada—i. e., in the general neighborhood of Stela 23, which was closer to the temple. It lay on the surface, face down in the midst of a group of mounds, unmapped as yet. Shook says it "was apparently unassociated" with them. At Caracol this would not be good evidence against its re-erection at the spot, but neither is there positive evidence that it was reset here. Field notes show that after its removal to camp, Broman excavated the area where it had lain, 1.25 x 1.75 m., without encountering a cache, such as occurred under the re-set Stela 23 top. Traces of a plaster floor were encountered about 25 cm. below surface. When found, about 15 to 20 cm. of the sides of the stela were exposed. It follows that the stone, about 40 cms. thick, lay on or just above this floor. A few sherds were encountered in reaching bedrock about 40 cms. down.

The possibility that both Stela 23 and Stela 25 may be far from their original locations is discussed on p. 74. The dedicatory date of Stela 25 is 9.4.3.0.0, probably within a katun of that of Stela 23, presumably a tun-end after 9.3.16.8.4. (Tikal Report No. 4).

REFERENCES

Coe, W. R., and V. L. Broman

1958 Excavations at the Stela 23 Group. No. 2 in "Tikal Reports Nos. 1–4." *Museum Monographs, The University Museum*. Philadelphia.

Maler, T.

1908 Explorations in the Department of Peten, Guatemala, and Adjacent Regions. *Memoirs, Peabody Museum, Harvard University*, Vol. 4, No. 2. Cambridge. (Note: Yaxha Stelae 1 and 5 are described on pp. 63–66.)

1911 Explorations in the Department of Peten, Guatemala–Tikal. *Memoirs, Peabody Museum, Harvard University*, Vol. 5, No. 1. Cambridge. (Note: Tikal Stelae 1–17 are described in numerical order on pp. 62–91; on p. 90 Stela 17 is mistakenly labeled Stela 11.)

Morley, S. G.

1937–1938
The Inscriptions of Peten. *Carnegie Institution of Washington, Publication* 437. 5 vols. Washington. (Note: Monuments of Tikal, Uaxactun, and Uolantun are described in Vol. 1, those of Yaxha in Vol. 3; illustrations are in Vol. 5, published in 1937)

Proskouriakoff, T.

1950 A Study of Classic Maya Sculpture. *Carnegie Institution of Washington, Publication* 593. Washington.

Satterthwaite, L.

1935 Palace Structures J–2 and J–6. *Piedras Negras Preliminary Papers*, No. 3, *The University Museum.* Philadelphia.

1954 Sculptured Monuments from Caracol, British Honduras. *University Museum Bulletin*, Vol. 18, Nos. 1–2. Philadelphia.

1956 Maya Dates on Stelae in Tikal "Enclosures." *University Museum Bulletin*, Vol. 20, No. 4. Philadelphia.

Shook, E. M.

1957 The Tikal Project. *University Museum Bulletin*, Vol 21, No. 3. Philadelphia.

Thompson, J. E. S.

1950 Maya Hieroglyphic Writing: Introduction. *Carnegie Institution of Washington, Publication* 589. Washington.

Tozzer, A. M.

1911 A Preliminary Study of the Prehistoric Ruins of Tikal, Guatemala. *Memoirs, Peabody Museum, Harvard University*, Vol. 5, No. 2. Cambridge.

See: Books: Tikal Reports - Numbers 1 - 4, pp 1 - 164

TIKAL REPORT NO. 4

FIVE NEWLY DISCOVERED CARVED MONUMENTS AT TIKAL AND NEW DATA ON FOUR OTHERS

Linton Satterthwaite

CONTENTS

Page

INTRODUCTION 89

Plan for describing individual monuments 89

Initial tabulations of miscellaneous information 90

Textual descriptions, with tabulations of content of inscriptions 90

Terms and abbreviations 91

Illustrations of monuments 92

DESCRIPTIONS OF SEVEN STELAE AND TWO ALTARS: CHRONOLOGICAL DECIPHERMENTS 93

Stela 12 93

Stela 14 97

Stela 19 99

Altar 6 102

Stela 22 103

Altar 10 106

Stela 23 107

Stela 24 111

Stela 25 113

COMPARISONS AND INTERPRETATIONS 116

Dimensions and proportions of carved stelae of Early and Late Tikal periods 116

Dimensions of 25 carved Tikal stelae (table) 117

Dimensions as period-indicators for carved Tikal stelae 118

Note on Stelae 4, 10 and 14 of Group 2 119

Dedicatory dates of carved Tikal stelae 119

Dedicatory date positions, Early Tikal period (chart) 120

Dedicatory date positions, Late Tikal period (chart) 121

Gaps in firmly dated sequence 122

Types of time-markers in the firmly dated sequence 123

Morley's question-marked dedicatory dates 123

Note on dedicatory dates of Stelae 12 and 10 125

Page

The lunar series of Tikal: comparisons 126
Background remarks 126
Summary of lunar data at Tikal 127
Range of deviations at Tikal: the mistaken moon age on Stela 3 128
First appearances of Glyphs X, B and A 129
Firmly dated lunar-series glyphs before 9.8.0.0.0 (tabulation) 130
Hypothesis of an early Tikal shift to "Uniformity" moon-numbering 132

SUMMARY 134

APPENDIX 136
Design-arrangement classification of carved stelae and altars 136
Morley's "classes" of stelae 136
Classification of carved stelae and altars by the number and positions
of carved surfaces 138
Morley's stela classes as types of carved surface classes (table) 139
Identification of the front of a carved stela 140
Identification of the front of a carved altar 140
Exceptional orientations 140

REFERENCES 143

FIGURES
Figure 17 Stela 10 145
Figure 18 Stela 12 145
Figure 19 Stela 14 145
Figure 20 Stela 23 146
Figure 21 Stela 23 147
Figure 22 Stela 25 148
Figure 23 Stela 25 149
Figure 24 Stela 19 150
Figure 25 Stela 22 150
Figure 26 Stela 24 150

INTRODUCTION

The potential value of new monument materials is enhanced when the quantity is considerable and when they take their place among others already known at a site important in other respects. The Museum's Tikal Project seasons of 1956–1957 raised the total of carved stelae by 19% and of firmly dated stelae by 25%, the increments being to the previously known series of early as well as late periods. The major purpose of this paper is to give a prompt account of the new data, monument by monument. Considered in context, they invite comparative treatments from several points of view, and these appear next, followed by a short Summary and an Appendix.

The basic sources for information on previously discovered Tikal monuments are the pioneers Maudslay (1889–1902) and Maler (1911), followed by Morley, who reviewed the field in general and undertook decipherments of the chronological portions of the inscriptions (1937–38). Morley's great work is encyclopaedic in character, and covers Stelae 1–20 and Altars 1–8, as well as the carved wooden lintels of Structure 10 and of the great temples. Given the monument designation, Morley's coverage of it can be quickly found in a very full index, and includes citations of earlier sources, which we will not ordinarily repeat. His Summary, in Vol. I, covers plain as well as carved stelae.

Berlin (1951) gives an account of Stela 21 and its carved Altar 9, discovered since Morley's time. Our 1956–1957 additions are Stela 22 and its carved Altar 10, Stela 23, Stela 24, and Stela 25. Among these, Stela 24 is classed as "new" though it is the same as Morley's Stela D8. It is "new" as a carved, rather than as a plain stela. The published record for Tikal carved stelae in general is far from complete. During the two seasons significant additions were made to our knowledge of what was carved on Stelae 12, 14, and 19, and on carved Altar 6.

PLAN FOR DESCRIBING INDIVIDUAL MONUMENTS

Eventually we hope to provide an improved record of all Tikal monuments. In particular we need properly lighted photographs of all carved surfaces. These are more easily promised than delivered. Heavy stones must be carefully moved, and the desired negatives must be accumulated gradually, as opportunity offers. While logic calls for giving all information on one monument in one place, it seems best to compromise with this ideal rather than to delay publication of obviously significant information. A set pattern of exposition is adopted, and as much information as is available is fitted into it. More may be added later.

The stelae covered are treated in the order of their numbers, the altar of a stela coming next after it. We use Arabic numerals rather than the previously used Roman ones in the carved altar sequence, which runs independently of the series of stela numbers.

The pattern for describing and discussing particular monuments follows established practice in general, but there are some innovations which require explanation. The rest of this Introduction is devoted to this.

Initial tabulations of miscellaneous information. This feature has been expanded beyond what has been customary, but does not entirely supplant general textual exposition, as it does in Ruppert and Dennison 1943. The topics covered in the initial tabulation for a stela are as listed below. The notes are suggestive of things not to be forgotten in the field and perhaps these might properly be expanded.

CATEGORIES USED IN DESCRIBING STELAE

Location:	General and specific, including relation to architecture, orientation to the cardinal points, etc.
Associations:	Altar? Cache? Grouped with other monuments? Contemporaneous ceramic and masonry types, etc.
Dedicatory Date:	Initial Series? Period End? Recorded or inferred? (Degree of doubt roughly indicated by question marks as in Morley.)
Style Date Limits:	Estimated by whom? Discussed in text ?
Condition:	Standing? Fragmentation? Missing large parts? Weathering or other damage to carved surfaces?
Photographs:	References to.
Drawings:	References to.
Other References :	
Carved Areas:	Classification by number and location of carved areas; chief items of subject matter; Morley stela classification.
Material:	
Shape:	Top, sides, bottom, cross section
Dimensions:	Maximums: width and thickness; height above lowest carving; below it; exposure of plain butt above floor; width at base of carving; depth of relief.
Comparisons:	Reference to similar monuments.

The classification by carved surfaces is a modification of Morley's classification of stelae, and is applicable to altars also. It is justified, and fully explained, in the Appendix to this report on pp. 135–141.

Textual descriptions, with tabulations of content of inscriptions. The initial tabulation of miscellaneous data is followed by recourse to straight text, with or without additional inserted tabulations. "General Remarks" may involve epigraphy and chronology in some general aspect, but details in those categories follow under "Comment on the Inscription." Here, if much is known, a tabulation of "Glyph Classifications and Chronological Decipherment" is given, usually supplemented by a "Summary of Chronology." Both involve a certain amount of innovation.

The glyph tabulation leads the reader straight through the whole inscription in the actual order of reading, so far as that is known, providing chronological decipherments and showing which glyphs are being passed over and left to those working on the non-chronological ones. Decipherments are to the right of the glyph-block designations. Here differential indentations help to mark off the chronological glyphs from the non-chronological ones, and intermediate indentation points

out glyphs which one hesitates to assign definitely to one class or the other.

Space is provided at the left for Long Count control of dates. Being juxtaposed to an exposition of what is actually recorded, these entries are less likely than otherwise to cause us unconsciously to assume that the carved record relies on place-value notation of numbers, or that there were plus or minus signs, or statements of Initial Series positions for every date. Here also we can letter various dates for easy reference, and readers may add classificatory or other notations of their own.

A disadvantage is that, when comparing with other inscriptions, one cannot see at a glance the full date belonging at the indicated Initial Series position. This defect is remedied by the "Summary" immediately below.

Like the similar summaries of Morley, these do not fully indicate doubts and reconstructions, but those are made clear immediately above, in the longer glyph-block tabulation. Our summaries differ in always following the order of the actual text, a matter of some importance. Comparison of our summary for Tikal Stela 19 with Morley's is instructive (see p. 101. It is now known that his reconstruction is partly incorrect. His readings appear more plausible than otherwise because as we proceed forward in his summary we are encouraged to ignore the fact that we actually move back twice in the inscription, skipping over chronological as well as non-chronological glyphs. We must check the actual positions of the indicated block numbers before we are sure that a highly irregular Maya order was being postulated. Supposed Maya irregularities should be emphasized, not minimized.

In both our glyph tabulations and summaries anything not supposed to have been present in some form in the actual text is placed in parentheses, a common convention not always consistently followed in Morley's summaries, including the one cited above.

In the glyph tabulations space is saved by disposing of blocks singly or in groups. This requires adoption of a convention in entering Initial Series or Secondary Series numbers on the left, in place-value form. They are placed opposite the designation of the latest block giving a part of the number.

Terms and abbreviations. In working out the chronological mechanisms implicit in the Maya texts on stone a number of classificatory terms have come into use. There have been some additions and some changes, and some latitude in the matter seems permissible provided one avoids ambiguity. The use of abbreviations ought, it seems to the writer, to be encouraged, but these should be as short as possible, for use in comparative tabulations which may show differing patterns in the various texts. Those which we may use here are listed below.

The references are to Morley 1937–38 and Thompson 1950. Thompson's great work is the present-day definitive one. We cling to "Secondary Series" because this connotes a special sort of distance number, with the values of its terms almost always rising in the order of reading, not descending as in Initial Series numbers (which are also a special sort of distance numbers, being counted from a base at 4 Ahau far in the mythological past).

Thompson's objection to the synthetic Maya term "Tzolkin" for the 260-day permutation of 13 numbered days and 20 named days is accepted as valid, but "Round" is substituted for his "Almanac." This is a logical extension of the common use of "Calendar Round" for the period resulting from the permutation of the short week-like 13-day and 20-day cycles with the vague-year cycle.

Many "rounds" existed and the term seems appropriate in classifying the 260-day cycle as one of them. On the other hand "Almanac" has been used in the dictionary sense for written tabulations of the post-Conquest period. It seems to the writer to be unsuitable as a general term for a divinatory cycle, and for dates in it, which may have originated before writing, and which operate today without it.

TERMS AND ABBREVIATIONS

DD	Dedicatory Date (Morley's "Contemporaneous Date")
IS	Initial Series
ISIG	Initial Series Introductory Glyph
SR	Sacred Round (Morley's "Tzolkin," Thompson's "Sacred Almanac")
VYr	Vague Year (of 365 days, counted continuously)
CR	Calendar Round (period of permutation of SR and VYr)
PE	Period End
SS	Secondary Series (Thompson's "Distance Number")
SSIG	Secondary Series Introductory Glyph (Thompson's "Distance Number Introductory Glyph")
LS	Lunar Series (as in Thompson, not part of a "Supplementary Series" as in Morley)
MA	Moon Age, (recorded or calculated average as shown by context)
MN	Moon Number (Glyph C coefficient, the absence of any coefficient being considered to be the equivalent of 1)
MT	Moon Type (29-day or 30-day formal lunation as expressed by 9-day or 10-day coefficient of Glyph A)

We follow Thompson in dropping "Supplementary Series," which included Glyphs G and F. Thompson has shown that Glyph F appears only with Glyph G, which forms a 468-year "round" with the Calendar Round. These two glyphs belong with the Sacred Round date which they follow (if present), not with Glyphs E-D-C-X-B-A, or some of these, which form the Lunar Series.

Illustrations of Monuments. It is our intention to accumulate a file of photographs of all carved surfaces with various lightings so that there will be an objective record of all details, so far as this is possible. In difficult and important cases casts and photographs of those will be made.

It is not feasible to publish considerable numbers of variant photographs of the same thing. Instead, one photograph will be accompanied by a drawing. The latter is supposed to show, in solid line, only what can be justified by some negative in the complete file. Restorations for which there seems to be some surviving evidence on the stone may be indicated in dotted line. Broken lines are used for restorations which seem clearly justified, but for which there is no longer evidence on the stone. Having indicated such distinctions, the subjective element in any drawing is unlikely to mislead significantly in the future. Of course scholars may consult the full photographic file at any time.

Usually, as in Figs. 20–23 of this report, the illustrations of monuments will be at a scale of 1:12, so that differences in size will be immediately apprehended. This scale is chosen to allow showing any known complete Tikal stela vertically on one page.

DESCRIPTIONS OF SEVEN STELAE AND TWO ALTARS: CHRONOLOGICAL DECIPHERMENTS

STELA 12

Location:	Main central plaza of Morley's Group A, before north terrace, in rear (northerly) line of stelae, next to Stela 13 to the east.
Associations:	Plain altar (?); see Tikal Report No. 3, p. 79
Dedicatory Date:	9.4.13.0.0 13 Ahau 13 Yaxkin (IS).
Style Date:	Proskouriakoff (1950) gives Late Classic, Formative Phase ? (see discussion, p. 125 of this report).
Condition:	Plain butt and about 25 cm. of lower carving missing; top portion incomplete, consisting of 4 fitted fragments and various small unfitted ones without glyphic surfaces; front badly flaked off; most surviving glyphic surfaces in fair to good condition.
Photographs:	Fig. 18a (of cast) and 18b, of this report; Maler, 1911, Plates 23 and 24 (23, 2 shows back with erroneous fitting of main fragment [Fragment 1] and next largest [Fragment 2]).
Other References:	Maler, 1911, p. 82; Morley, 1937–38, I, pp. 328–330; Tikal Report No. 3, pp. 78–79.
Carved Areas:	Class 4: FLRB / Morley Class 4. Front: high relief human figure, body in front view, head to observer's right; left and right sides have single columns of glyphs (A and D); back, a double column (B and C). See text for renumeration of columns.
Material:	Limestone.
Shape:	Top rounded, slight asymmetry; probably straight parallel sides; cross section approximately rectangular.
Dimensions:	Maximum width and thickness: .70 m. x estimated .46 m. Maximum height of Fragment 1: 1.50 m. ± Maximum depth of relief (front): 50 mm. Maximum depth of relief (glyphs on sides and back): 7 mm.
Comparisons:	Stela 10; deep relief of figure also on Stelae 23 and 25, possibly on Stela 14.

GENERAL REMARKS

Our dedicatory date for Stela 12 is the same as that arrived at by Morley, but we eliminate his three question marks, which meant it was probably wrong.

The correctness of this reading is important because deep-relief carving of the human figure links this stone with Stela 10 and with our new Stelae 23 and 25. The maximum depths of relief of the group range from 50 mm. for Stela 12 to 100 mm. for Stela 10. Such depths are rare in the region and put one on notice that the intervals between the carvings were probably not very long.

There is some doubt whether or not the known top portion of Stela 12 was found erect by Maler,

whether more large fragments may be found by excavation, and whether there was an associated plain altar. As matters stand, there is a possibility that we have the remains of a top fragment brought from elsewhere for re-erection in the plaza (see Report No. 3, pp.78–79).

COMMENT ON INSCRIPTION

In view of the above remarks the large amount of restoration noted in our glyph tabulation may be properly viewed with initial skepticism. We are able to eliminate Morley's doubts by reading

Stela 12: Glyph Classification and Chronological Decipherment

(Order of reading: right side – back – left side; down in single columns of sides, left – right and down in double column of back; number of blocks: 7 + 14 + 7 = 28)

	Right side	
	A1–A2	ISIG, 9 baktuns (restored–both blocks missing)
	A3–A4	4 katuns, 13 tuns (head variants; coefficients entirely missing and restored–see text)
9. 4.13. 0. 0	A5–A6	0 uninals, 0 kins (head variants)
	A7	13 Ahau (entirely restored–only top of day sign survives)
	Back	
	B1	Glyph G9 ? (block is entirely missing)
	C1	5, Glyph E (head variant coefficient–moon age 25 days)
	B2	Glyph D ? (block entirely missing)
	C2	3, Glyph C (moon No. 3)
	B3	13 Yaxkin (2 of 3 dots missing and restored, 2 bars certain; Yax prefix is local scalloped form; main sign is head similar in outline to kin head of the IS at A6)
	C3	Prefix, 13 tuns (symbolic form, border like that of tun sign in SS of Stela 23)
	B4	Completion of tun (hand, "wing," bird head rather than Cauac)
	C4–C6	5 non-chronological blocks
	B7	1 block, largely missing (top of head ?)
	C7	1 block, entirely missing
	Left side	
	D1–D5	5 non-chronological blocks
	D6	1 ditto with coefficient of 19
	D7	Closing block missing

Summary of Chronology

A1–B3	IS	9. 4.13. 0. 0	13 Ahau, G9, MA 25, MN 3, 13 Yaxkin
C3–B4			Tun 13, completion of tun

more of the shattered record than he did. This is possible because we actually fitted together Fragments 1 and 2, the main portion and the next largest one. While definitive illustrations are not yet available, Fig. 18 gives adequate control. The fitting proves that there were only four columns in the complete text, not the five assumed by Maler or the six assumed by Morley. Morley also doubtless accepted the vertical alignment of Fragment 2 with relation to Fragment 1, as in Maler's Plate 23, 2, where he places it two rows higher than it should be. We have redesignated the blocks

as he would now give them.

The restorations of our glyph tabulation involve positional evidence and are best justified step by step.

First: There were almost certainly 7 rows of glyphs on each side and on the back, not the 6 of Maler's reconstruction, nor the 8 postulated by Morley with a question mark. The vertical dimensions of the human figure on Stela 12, so far as the figure survives, correspond very closely to those of Stela 10. With this control the maximum height of Stela 12, above the base of carving on the front, was probably very close to 1.78 m.; or perhaps a bit less. We cannot restore eight rows of glyphs without going about 20 cms. below this level on the sides and back. Checking other stelae of the period, including Stela 10, shows that the bases of glyphic panels should be approximately at the level of the base of carving on the front, or else higher.

Second: Fitting a fourth fragment, not known to Morley, gives zero as the coefficient of the uinal glyph; thus Morley was certainly right in assuming an IS at a period end.

Third: We must pass from a missing day Ahau at A7 either to the left side, as did Morley, or to the back. Choosing the back, we pass a missing block where Glyph G (or combined G–F) is expectable and come next to a clear Glyph 5E. Since this gives an age of 25 days, Glyph D without coefficient is expectable in the next missing block, and we come next, in proper place, to Glyph 3C at Block C2. The next block shows a head with a prefix, and a coefficient of two sure bars and one surviving dot, with room for more above it. It can be neither Glyph B, nor X nor A of the Lunar Series. Since on Stela 23 Glyph C is followed immediately by the month sign of an IS, we may presume that our Block B3 completes the IS date here, with a similar suppression of Glyphs B,X, and A. Thus we are forced to question Morley's belief that no month sign appears on the monument.

Fourth: Seeing a month sign at B3 is confirmed by its position immediately before the record of 13 tuns at C3 (Morley's D3), followed by what surely must now be read as "completion of a tun," though a bird head is used where the Cauac sign usually appears. But if B3 gives the year date for a day Ahau, the coefficient must be restored as 13, since two bars are certain, and any such date must have 3 dots, not 2 or 4.

Fifth: Between 8.15.0.0.0 and 9.17.13.0.0 there are only five 13-tun ends meeting the required conditions, as listed below. At the right we give average moon ages for these dates, calculated

9. 2.13. 0. 0	13 Kayab	(7.49)
9. 3.13. 0. 0	13 Ceh	(2.03)
9. 4.13. 0. 0	13 Yaxkin	(26.10)
9. 5.13. 0. 0	13 Uo	(20.63)
9.17.13. 0. 0	13 Muan	(14.13)

from an arbitrary age of 13.26 at the Initial Series base—practically identical with the arbitrary base of zero age at 9.17.0.0.0 used by Teeple, Roys, and Andrews as a standard of comparison (see p. 128). The recorded age, 25 days, should deviate from the average within "Teeple's limits," rather loosely defined as no more than 3 days more or less. To keep within the limits we must choose 13 Yaxkin and restore missing IS coefficients accordingly.

Sixth: By inspection, the month-glyph prefix has lost incised details, but it has the scalloped outline of a sign which Morley noted elsewhere, and which he considered a Tikal variant of the Yax sign. He did not, however, find it used as part of a month sign. On Stela 6 he thought a required 18 Yax had been suppressed. The "scalloped" Yax prefix with a head did not there seem to come

in the correct position. The difficulty has been eliminated by Thompson, who convincingly now reads the block in question as a year date, 18 Yax. (1950, p. 136; Fig. 5, 53). The inner details of our prefix on Stela 12 are lost, but surely the outline is strong confirmation of the result arrived at via the moon age.

Seventh: There can no longer be any reasonable doubt that B3 gives a head-variant Yaxkin, though the head is not the usual one of the sun god, This is doubtless what led Morley to conclude that no month sign was recorded. However, neither is the head used for kins in the IS a normal sun god head, and the two are not very dissimilar.

Our reading not only definitely fixes Stela 12 in the Long Count, where Morley put it; it puts his identification of a local Yax variant on a still more solid foundation, along with Thompson's confirmation of his reading of 9.4.0.0.0 for Stela 6. The prefix occurs several times on Stela 10, though not as part of a month sign. It is another link between Stela 12 and that important monument.

The "horseshoe border" of the tun sign at C3 reaches the base of the glyph, as on Stela 25. This tends to justify Morley in reading "tuns" on Stelae 10 and 17 where interior details of glyphs of this general form have been lost. On the other hand, however, Stela 12 indicates that period-ending records of 13 tuns ought to come in the usual place, after or very shortly after the month sign of the date. With respect to Stela 10 there are two reasons for suspecting that a 13-tun dedicatory date PE does not appear. First, the coefficient (at H7 of Morley's enumeration) now appears best as 8, not as 13 (Fig. 17). Second, we have every reason to assume that on Stela 10 one passed from the right side to the back, as on Stela 12. The possible 13-tun record of Stela 10 is therefore not only far from the beginning, but also is by no means near the end of the inscription, where a dedicatory PE date is most expected.

If we are right in claiming that the back of Stela 10 should be read before one passes to the left side, there is no longer any real reason for supposing that the kins term of the 8 or 9-term so-called "Initial Series" was suppressed. The kins term, and the date reached, may have been recorded in the badly eroded upper area of the back. With this order of reading, speculations of Thompson as well as of Morley as to the date reached by the "IS" become untenable.

The same reasoning which leads one to doubt that a 13-tun PE appears on Stela 10 applies to Morley's dedicatory 9.6.13.0.0 for Stela 17. The sign at G3 of that monument has a clear coefficient of 13, but it is far from the end of the IS, and also from the end of the inscription on the surface involved. Further, while the form of the glyph is similar to that of the tun sign on Stelae 12 and 3, the interior diagnostic details are completely gone and there is a superfix which has not been shown to be expectable in period-ending expressions; also there is no "tripod" subfix as on Stelae 12 and 10.

If our reading is accepted, we have three sure 13-tun markers at Tikal, but probably only three so far as surviving glyphs indicate. These are 9.2.13.0.0, 9.4.13.0.0 and 9.15.13.0.0 (Stelae 3, 12, and 5, respectively). As Morley noted, the latest of these three can be considered as the 13-katun "anniversary" of the earliest, but whether this was in the minds of the Maya when they erected Stela 5 would be hard to prove. The date of Stela 12, is an even 10 tuns after that of Stela 25, and an even 13 tuns after that of Stela 6 (and perhaps of Stela 23). The relationship to the prior katun end, which closed with the same SR date, is most probably what was involved.

STELA 14

Location:	North side of main central plaza in Morley's Group A; erect fragment at east end of northerly (rear) row of stelae and altars. Bottom fragment only is known; back faces south, away from North Terrace, at base of the slope.
Associations:	No altar; with others, placed before North Terrace.
Style Date:	Early Tikal Period (see text).
Condition:	All except single bottom fragment missing; of this, front and front portions of sides entirely missing. Surviving sculptured surfaces blurred by weathering.
Photographs:	Fig. 19 of this report; Morley, 1937–38, V, 1, Fig. 72a.
Other References:	Tikal Report No. 3, p. ; Morley, 1937–38, I, pp. 330–332.
Carved Areas:	Class 4: FLRB / Morley Class 6 (see text).
Material:	Limestone.
Dimensions:	Maximum width and thickness .80 m. x approximately .50 m.
Comparisons:	Stelae 23 and 25.

GENERAL REMARKS

Morley erroneously classified this lower fragment as Class 5 in his system, not knowing there are figures on the side and believing it was sculptured on one side only, with glyphs, and that these were therefore on the front. Fig. 19 shows the foot of a human figure on the left (east) side, and also how fractured surfaces now extend below the base level of the design toward the front of this side and across the entire front. The complete loss on the right side is even more extensive than on the left side, but a remnant of border behind what is doubtless the back of a heel survives. With Stelae 23 and 25 now in the picture there is no doubt that there was a principal human figure on the front. The surface with glyphs is therefore the back, though it is turned away from the North Terrace. This leads one to suspect the resetting of this bottom fragment (see Report No. 3). For further discussion of this class of carved stelae at Tikal see under Stela 23.

Morley considered the fragment to belong in the early period on the basis of glyph style. This is now confirmed by the classificatory agreement with the early-period Stelae 23 and 25 (9.3.16.8.4 + and 9.4.3.0.0). In addition, the sandal on the one surviving foot appears to be of Proskouriakoff's Type XII–B1, tagged as "Early Tikal" (1950, p. 86).

COMMENT ON INSCRIPTION

Morley suggested 9.5.0.0.0 11 Ahau 18 Zec ?? as the dedicatory date, with 9.5.13.0.0 as another possibility. Either would make it close to the similar Stelae 23 and 25, and help to fill "Gap 1" in the firmly dated sequence. Though one of these may well be correct, we now know that "odd" tun markers are possibilities among early Tikal monuments, and there is actually no epigraphic help in what survives of the inscription.

Morley allowed for ten missing rows, making the bottom one the 13th. I shall use his numeration, placing the row numbers in quotes because they are probably too low (see below).

We accept his reading of an SS of 10 kins, ? uinals, and 8 tuns at A "12"–B "12", and may concede that, after skipping a block, the SR day reached is recorded at B "13." However, his

published photograph, an excellent artificially lighted one in our files, and the stone itself, show that nothing survives within the cartouche. The coefficient is 11, but the day need not be Ahau. If it is, there is still no reason to think it records a dedicatory period end, because it is far from the missing opening date, and equally far from the end of the inscription. Extra wide spacing between columns B and C guarantees that we should read in normal double-column order. The next to last glyph (C "13") seems to have a coefficient of 9, recalling the coefficient 19 with a non-chronological glyph in the corresponding position on Stela 12.

Length of the inscription. Unless the missing upper portion of the inscription is found, the length of the inscription must remain unknown. However we can arrive at a *minimum* estimate which is not entirely guess work. The writer measured the lengths of as many early-period carved feet as could be seen. The corresponding A-heights (design-base to top of stone) are listed below, in meters. The figures in parentheses are heights of human figures, feet to top of headdress, where these are substantially below the A-heights. Of course we

	Height A		Foot Length
Stela 15	1.32		.165
Stela 9	1.66	(1.41)	.180
Stela 3	1.64 ?	(1.54)	.185
Stela 7	1.55		.190
Stela 14	?		.200
Stela 10	2.05		.230

cannot assume faithful adherence to a standard set of vertical proportions, including heights of headdresses, but there does seem to be rough correlation between the horizontal length of the foot and the height of the figure. On this basis the Height A of Stela 14 was probably considerably below that of Stela 10, but probably no lower than the 1.55 m. of Stela 7.

The glyphs begin about .13 m. above the base level at the side, and those which survive vary between 8 and 9 cm. in height. Using 8.5 cm. as an average, and 1.55 m. as a minimum Height A, there is room for 15 rows and a wider top border than on either Stela 23 or 25. The resulting minimum of 60 blocks compares with the known minimum of 56 blocks on Stela 25; in both cases there may have been more. If Stela 14 is ever precisely dated (by finding more fragments) we will know whether two moderately long inscriptions might be carved with an interval of less than a katun between them, as Morley's preferred 9.5.0.0.0 dating now requires. Other than somewhat vague considerations of glyph style, the only actual evidence for placing Stela 14 after, rather than before the similar Stelae 23 and 25 is the fact that it is noticeably wider. This might reflect a tendency toward larger stelae toward the end of the early period (see p.119). If, with this in mind, we restored Stela 14 with the 45% relative width index of Stela 10, Height A would come out at 1.78 m., with room for 18 rows of glyphs or a total of 72 blocks. This is perhaps a probable maximum, still somewhat less than is possible (but not required) on Stela 25.

STELA 19

Location:	Twin-pyramid court immediately west of that of Stela 22, at lower level in Morley's Group E; fallen backward, face up, bottom at approximate center of northerly "enclosure" (probably a thatch roofed, masonry-walled building [Str. 81 of Morley's map]). Stela faced single opening or doorway in south side. Precise orientation was probably close to Mag. S.
Associations:	Carved Altar 6 (see next section); veneer masonry walls of enclosure; possibility that sub-stela cache was present and removed between 1928 and 1937.
Dedicatory Date:	9.18.0.0.0 11 Ahau 18 Mac (PE).
Style Date:	9.18.10.0.0 ± 2 katuns (revised Proskouriakoff estimate, 1956, in personal communication).
Condition:	Complete except for split-off areas of carved front, including much of border and upper part of headdress (three small fragments of latter recovered, and more may be found). Upper glyph panel and head and headdress of figure badly weathered.
Photographs:	Fig. 24 of this report; Proskouriakoff, 1950, Fig. 60b; Satterthwaite, 1956, Figs. 35–38.
Drawings:	Morley, 1937–38, I, p. 363, Fig. 17b-d (glyphs only).
Other References:	Morley, 1937–38, I, pp. 366–369; Proskouriakoff, 1950, pp. 139, 196; Shook, 1951, p. 17.
Carved Areas:	Class 1: F / Morley Class 7. One human "corn-sowing" figure, full profile, faces observer's left; high headdress, large "back mask;" segmented open-work staff or bar cradled in left arm; bag hangs from left wrist. Inscription in upper and lower panels before figure, at observer's left.
Material:	Stratified limestone.
Shape:	Top rounded, slight asymmetry; straight sides diverging upward and affecting verticality of lower glyph panel; cross section rectangular with slightly bulging sides. Sides of plain butt curve inward to more or less straight but irregular bottom.
Dimensions:	Maximum width and thickness: 1.17 x .50 m. Maximum height above lowest carving: 1.84 m. Maximum height of plain butt: .69 m. Plain butt exposure above floor: evidence lost. Maximum width at base of carving: 1.03 m. Maximum depth of relief: 35 mm.
Comparisons:	Very similar to Stelae 21 and 22.

GENERAL REMARKS

The enclosure and the top half of Altar 6 were discovered by Maler; Shook found the stela and what has turned out to be the bottom half of the altar in 1937, on behalf of Carnegie Institution of Washington. The writer cleared the enclosure of bush and studied Stela 19 on the spot in 1956, and made casts of Blocks A1–B2 and A9–B13. The dedicatory date assigned above differs from Morley only in the removal of his question mark. Satisfactory photographs for definitive illustration will be available only after the stone has been moved, but cited photographs give fairly good control of the inscription.

COMMENT ON THE INSCRIPTION

Our decipherment tabulation is offered below with no important question marks, though the opening Date A involves reconstruction. This depends on readings in the lower panel which differ

Stela 19: Glyph Classification and Chronological Decipherment

(Order of reading: upper panel — lower panel, left — right and down in double column. Number of blocks: 10 + 16 = 26)

	Upper panel	
A (9.18. 0. 0. 0)	A1–B1	11 Ahau 18 Mac (largely restored—see text)
	A2	18th katun (partly restored—see text)
	B2	Badly eroded (haab completed ?)
	A3–B5	6 non-chronological blocks
	Lower panel	
	A6–A8	5 non-chronological blocks (see text for comment on B7, read by Morley as 1 Ahau)
	A9	4 katuns ? ("isolated" without "Ben-Ich" prefix ?—see text.)
−1.14.19	B9–B10	19 kins, 14 uinals, 1 tun (kin sign eroded, others surely head variants—see text; no SSIG)
B (9.17.18. 3. 1)	A11–B11	2 Imix 9 Kayab (see text for comment on day-number)
	A12	Completion sign (hand, tassel, affixes)
(− 1. 0. 0. 0)	B12	"Expiration" of 1st katun (bracket prefix, "death eye" postfix; coefficient above symbolic katun sign is dot flanked by crescents)
(C) (9.16.18. 3. 1)		(Suppressed 4 Imix 4 Zotz of which Date B is the 1-katun "anniversary")
	A13	1 non-chronological block ?
	B13	"Hand scattering water," affixes (closing glyph)

Summary of Chronology

A1–B1	Date A	PE	(9.18. 0. 0. 0)	11 Ahau 18 Mac
A2–B2				18th katun, haab completed (?)
B9–B10		SS	− 1.14.19	
A11–B11	Date B		(9.17.18. 3. 1)	2 Imix 9 Kayab
A12–B12			(− 1. 0. 0. 0)	"Expiration" of 1st katun
	(Date C)		(9.16.18. 3. 1)	(Suppressed 4 Imix 4 Zotz)

completely from Morley's reconstruction. His summary does not fully reflect doubts clearly indicated in his text. It seems worth while to reproduce that summary here, with our own comments at the right, and then to justify the comments with discussions of specific blocks. Morley's difficulty was that he never saw the original or a cast, and he had to work from a poor photograph which had to be taken in the rain (Shook, personal information). The Morley summary is given below.

MORLEY SUMMARY

A1–A2	9.18. 0. 0. 0	11 Ahau 18 Mac	
A11–B11	9.16. 1.12. 1	5 Imix 9 Kayab	(2 or 4, not 5 as day number)
B9–B10	1.11.19		(14, not 11 uinals in SS)
	(9.16. 3. 6. 0	6 Ahau 18 Yax)	
B12	6.12. 0		(1 katun "anniversary PE," not an SS)
B7	9.16.10. 0. 0	1 Ahau (3 Zip) (?)	(Not a date)
A12–A13	End of a tun (?)		(A12 belongs with B12)

The first four of the following notes on various blocks are in agreement with Morley's summary, but the others are not. It has already been noted that his scheme is made more plausible by his failure to deal with the blocks in the actual order in which they appear in the inscription.

Block A1. Coefficient over 5; eroded and perhaps preferably not over 10, by inspection; surely prefixed to eroded day sign.

Block B1. Coefficient surely 18; hopelessly eroded main sign is surely a month sign, by position.

Block A2. Eroded elongated prefix; badly eroded main sign which could be remains of katun sign which has superfixed coefficient of 17 or 18 (doubtful whether central element is a dot or filler).

Block B2. Badly eroded. Long narrow prefix. Main sign might be hand with Cauac.

Block B7. Prefix looks like bracket "with dots on back" as in B12; main sign lacks complete day sign cartouche. Thompson (personal communication) compares the main sign with that of B6 on Stela 22 (with a different non-numerical prefix). There, somewhat Ahau-like interior details are clearer, but the sign is surely not the day sign Ahau.

Block A10. Original and cast clearly show two lower dots in the uinal coefficient, part of a third, with a damaged upper space for a fourth. Coefficient is surely 14, and the whole SS is 1.14. 19, not 1.11.19.

Block A11. Inspection now shows that the coefficient of Imix must include two centrally placed dots, and cannot be a bar for 5. Careful measurements on the original show room for longer fillers at top and bottom. Bottom area is destroyed; a longer element survives at top. While it is not now a very satisfactory crescent, its shape does suggest that it is an eroded one. Thus the preferred reading is 2 Imix, with 4 Imix as the only (and improbable) alternative.

Block B12. The prefix is a bracket with three elongated dot-like elements on the right, and three others on its back. In 1953 Thompson suggested to the writer that Morley had been misled by erosion of such a bracket so as to give the appearance of a numerical coefficient with two bars. He also concluded that the main sign is a record of 1 katun, not of 6 tuns, and signifies an anniversary. The new photographs enabled him to point out that the subfix is clearly a damaged "death eye" sign, signifying "expiration." Morley's reading as a secondary series with suppressed kin coefficient as well as kin sign, and suppressed uinal sign, must be rejected.

The "base date" of this anniversary is not known on any other Tikal monument. It may yet be found, or it may have been lost. Perhaps it appeared in some painted inscription on a now plain stela of the late period.

Morley allowed alternative dedicatory dates of 9.17.0.0.0 13 Ahau 18 Cumku and 9.18.0.0.0 11 Ahau 18 Mac, preferring the latter. Discovery of the very similar Stela 22 confirms his assumption that the first four blocks recorded a katun end which (granting this) can be only the one or the other. We now believe that both Stelae 22 and 19 were elements in entire katun-marking "twin-pyramid" courts, and two such extensive period markers for the same katun are not credible. Since Stela 22 is at 9.17.0.0.0, this reasoning confirms Morley's preference for 18 rather than 17 katuns at A2.

With his misconceptions respecting the lower panel cleared away, all lingering doubts are eliminated. By analogy with the similar Stela 22, our single SS should be counted backward from Date A, though actual anterior or posterior date indicators are not given. Since the kin term is 19 and must reach Imix, the day sign of A1 must be restored as Ahau. We could count the whole number back from 13 Ahau at 9.17.0.0.0 to the highly doubtful reading of 4 Imix at A11; but the same count from 18 Cumku at 9.17.0.0.0 would reach 4 Zotz, not the 9 Kayab at B11. Counting from Date A as we have it (at 9.18.0.0.0) reaches the preferable 2 Imix and the certain 9 Kayab, which is surely no coincidence. We must restore the coefficient at A1 as 11 rather than 13. Obviously only a trick of erosion gives an erroneous impression that this coefficient was 10 or less. Proskouriakoff's now more precise style dating confirms our reading.

The period-ending expression in B12 follows immediately after another probable completion sign which, in turn, comes immediately after Date B. Obviously the statement is that Date B is the "1-katun anniversary" of a suppressed date which must be 9.16.18.3.1 4 Imix 4 Zotz. Thompson is not responsible for this last inference, but it can hardly be avoided. His recognition of some anniversary here adds Tikal to the following sites which he listed as recording tun or katun anniversaries: Palenque, Piedras Negras, and Yaxchilan in the Usumacinta region; Naranjo in the Central Peten; and Copan and Quirigua in the Montagua region. The pattern occurs also on the Bishop Jade, provenience uncertain (Thompson, 1950, pp. 195–96). This Tikal record seems to be the second case where the "death eye" sign has been found in this context.

The secondary series is unusual in that the kin glyph is not suppressed.

The head in A9 is badly damaged, but the superfix looks like that of the symbolic katun sign, which can appear also with the head variant. The coefficient is almost surely 4. This may be an example of the isolated katun with coefficient no more than 6, without the "Ben-Ich" superfix. It definitely occurs at B8 of the similar Stela 22, also with coefficient of 4.

ALTAR 6

Location:	Disturbed by 1937, but probably in place before Stela 19 when seen by Maler.
Dedicatory Date:	Presumably same as Stela 19 (9.18.0.0.0 PE).
Condition:	Split into upper and lower halves with further fragmentation of upper half; some of latter missing. Carved sides and top very badly weathered, especially the latter.
Photographs and Drawings:	Satterthwaite, 1956, Figs. 35 and 39.
Other References:	Maler, 1911, p. 91; Morley, 1937–38, I, p. 369 and Fig. 14; Shook, 1951, Fig. 1.
Carved Areas:	Class 2: TP /. Top had "petaled" border , belly-down victim. Periphery quartered, 4 seated gods, front view except heads turned to observer's left; 4 "basketry" elements, two at least supporting single glyphs; plain borders top and bottom, as seen from sides.

Material:	Stratified limestone.
Shape:	Round: vertical sides bulge slightly.
Dimensions:	Diameter: 1.16 to 1.22 m. (bottom half). Maximum height: about .50 m.
Comparisons:	Similar to Altar 10 of Stela 22 in respect to border and quartering of periphery; to Altars 8, 9, and 10 in showing belly-down captive.

GENERAL REMARKS

Proper photographs of this altar are impossible until its fragments can be assembled. Controlled sketches of the designs on top and periphery were made from the original by the writer; they are published in the cited 1956 article. Apparently the designs had not been carefully examined before.

STELA 22

Location:	Easterly twin-pyramid court of Morley's "Group E," at approximate center of northerly "enclosure," probably a masonry-walled building with thatch roof. Stela faced single opening or doorway in south side (due magnetic south by Brunton compass, 1956).
Associations:	Carved Altar 10 placed axially before stela, .58 m. from it; veneer facing of enclosure; no excavations for sub-floor caches or ceramics (as of 1957).
Dedicatory Date:	9.17.0.0.0 13 Ahau 18 Cumku (PE).
Style Date:	9.16.0.0.0 $\pm$ 2 katuns (Proskouriakoff, personal communication).
Condition:	Standing, unbroken, lowest 25 cm. or so of design below surface of washed-in soil; comparatively little serious weathering except in region of priest's face, where intentional mutilation could be postulated.
Photographs:	Satterthwaite, 1956, Figs. 29–34; Fig. 25 of this report.
Other References:	Same, pp. 29–33; Shook, 1957, pp. 45–49.
Carved Areas:	Class 1: F / Morley Class 7. One human "corn-sowing" figure, full profile, faces observer's left; high headdress, large "back mask;" segmented open-work staff or bar cradled in left arm, bag hangs from left wrist. Inscription in upper and lower panels at observer's left.
Material:	Limestone.
Shape:	Top rounded, with slight asymmetry; straight sides, diverging upward and affecting verticality of lower glyph panels; rectangular cross section, with slightly bulging sides.
Dimensions:	Maximum width and thickness: 1.17 m. x .50 m. Maximum height above lowest carving: 1.98 m. Maximum height of plain butt: (not excavated). Plain butt-exposure above floor: apparently about .15 m. Maximum width at base of carving: 1.00 m. Maximum depth of relief: 23 mm.
Comparisons:	Very similar to Stelae 19 and 21.

GENERAL REMARKS

Some of the data tabulated above are from Shook, who thoroughly cleaned the enclosure of plant growth in 1956, when he discovered it and the stela and altar; other information was obtained on his behalf by the writer during a visit the same year. There has been thorough cleaning of bush but no excavation as yet. Publication of definitive photographs and drawings is postponed, pending more photography. Published ones have been cited and the inscription appears again here in Fig. 25.

The altar was found before the standing stela, its southerly edge tilted up somewhat, presumably by ancient root action. There was no other evidence of disturbance. Associations are more extensive than is indicated in the above tabulation if stela and altar are merely elements in a complete twin-pyramid complex built at one time as a katun marker. Broman's failure to find superimposed floors or buried construction near the plain stelae before the east pyramid tends to confirm this hypothesis. Shook read the dedicatory PE date when he discovered the monuments.

COMMENT ON THE INSCRIPTION

There is nothing doubtful respecting the facts in the tabulations below. The details of day and month signs at A1–B1 are lost, but with the control of the PE expression at A2 these are restorable with certainty.

It follows that the moon sign at B9 is to be added to five previously known uses of this sign to express 20 days. It has the "distance number postfix," and substitutes for the uinal sign with coefficient of 1. Unless the dot-like disk is considered numerical it lacks any coefficient, as does a sign functioning in the same way in the codices. That codex sign never appears in a number exceeding 39, and this is the first case where the moon sign appears in a larger number, on the monuments. It is still possible to believe that like the codex glyph it never appeared unless a multiplying coefficient, had one been given, would have been 1.

The five examples listed by Thompson all have coefficients, but these are not multipliers of the 20-day value of the moon sign. They are kin coefficients with the kin glyph suppressed, just as in ordinary SS with uinal signs. The cases cited by Thompson are at Palenque, Piedras Negras, and Yaxchilar in the Usumacinta region, Balakbal to the north of Tikal, and Quirigua on the Motagua (1950, p. 167). The now known cases can be covered by a rule that the "moon-with-enclosed-dot" sign, without coefficient of its own, can substitute for the uinal sign with coefficient of 1, and in 2-term or 3-term numbers.

In reaching the "moon-with-enclosed dot" glyph in the SS we passed another at A5, where it cannot function as an SS, and where one supposes the coefficient signifies 9 days to be added to 20 days, as one would read it in a lunar series. In this particular case there is no reason for not reading this as an "isolated" Glyph E, giving a moon age of 29 days for the dedicatory PE date, but without the other Lunar Series glyphs. For this same date, but in Initial Series form, Quirigua gives a proper LS, with *zero* age probably at the beginning point of a calculated 29-day moon (9A), and hence probably at the ending point of a calculated 30-day moon. Our knowledge of the Maya lunar count is incomplete, but there is no reason to be suspicious of a 1-day difference in age counts at different sites.

Similar cases of apparently isolated moon-age records could be cited. The interpretation is suggested in the Summary with three question marks because, if we considered all of the potential ones to which Thompson refers me (personal communication) we should find ourselves allowing for a suspiciously large proportion of Maya mistakes—supposed ages deviating from a calculated standard average age beyond "Teeple's limits" of seven days. In the meantime we have a bit of new evidence on an unsolved problem.

Stela 22: Glyph Classification and Chronological Decipherment

(Order of reading: upper panel—lower panel; left—right and downward in double column. Number of blocks: 12+ 12 = 24)

		Upper panel	
A	(9.17. 0. 0. 0)	A1—B1	13 Ahau 18 Cumku (details of month sign gone—see text)
		A2	17th katun (bracket prefix)
		B2	Haab completed (Cauac sign, hand, "wing")
		A3—B4	4 non-chronological blocks
		A5	9, "moon-with-enclosed-dot" (Moon age of Date A ???)
		B5—B6	3 non-chronological blocks
		Lower panel	
		A7—A8	3 non-chronological blocks
		B8	4 katuns ("isolated," without Ben-Ich prefix)
	— 2. 1.16	B9—A10	16 (kins), "moon-with-enclosed-dot", 2 tuns (tun sign is head variant; moon sign has value of 20 days, that is, 1 uinal; note "distance number postfixes" and see text)
B	(9.16.17.16. 4)	B10—A11	11 Kan 12 Kayab
		B11—A12	2 non-chronological blocks
		B12	"Hand scattering water," affixes (closing glyph)

Summary of Chronology

A1—B1	Date A	PE	(9.17. 0. 0. 0)	13 Ahau 18 Cumku
A2—B2				17th katun, haab completed
B9—A10		SS	— 2. 1.16	
B10—A11	Date B		(9.16.17.16. 4)	11 Kan 12 Kayab

At B8 we add to the raw material for another such problem—that of the common isolated katun entries with coefficients not above 6, which Thompson discusses under the heading "Ben-Ich Katun." Here the coefficient, though damaged, is clearly 4, and the Ben-Ich superfix is lacking.

The "Secondary Series Pattern" of this stela is the same as that of Stela 19, and presumably of the incompletely known Stela 21—that is, single SS counts are all backward from an initial dedicatory PE date.

ALTAR 10

Location:	In place, .58 m. before Stela 22.
Dedicatory Date:	Presumably same as of Stela 22 (9.17.0.0.0).
Condition:	Fair to good, no fragmentation; extensive small pittings obscure details of design on top.
Photographs:	Satterthwaite, 1956, Figs. 29–31.
Carved Areas:	Class 1: TP / Top shows belly-down victim on or before a rectangular element with horizontal bands of glyphs at top and bottom ; these partly obscure a 4-lobed "frame" within an outer circular border of petal-like elements (the latter as on Altar 6). The periphery is quartered, with four captives, seated with arms bound behind backs, front view except for profile faces turned to observer's right and upward; mat elements between the captives; double rope runs around the stone, passing behind captives and mat designs. As seen from sides, plain borders at top and bottom.
Material:	Limestone.
Shape:	Round; vertical sides bulge slightly.
Dimensions:	Diameter: 1.25 m. Height: about .50 m.
Comparisons:	Altar 6 (belly-down victim and "petaled border"); Altar 7 (mat design); Altars 8 and 9 (victim).

GENERAL REMARKS

The cited illustrations of this new altar are far from adequate, and satisfactory ones of the top and of all parts of the periphery cannot be supplied until an accurate recording of position within the enclosure is at hand, and the stone can be moved. In the meantime it seems sensible to tabulate the essential data, as above, and to postpone publication of definitive illustrations.

The design on the top is more complex than any of those on other Tikal carved altars. Its glyphs do not give any epigraphic dating control, but we have assigned it the same Dedicatory Date as the stela. This is the natural assumption when there is no positive evidence of disturbance or secondary movement. In this case the assumption is fortified by presence of an altar as well as a stela in each of the five "enclosures" within twin-pyramid groups, and by a rare trait on two of these altars before stelae with Dedicatory Dates only one katun apart. The trait is the "petaled" border on the top of our Altar 10, and on that of Altar 6 before Stela 19, dated at 9.18.0.0.0. For illustrations see Satterthwaite 1956, Fig. 32 (Altar 10) and Fig. 39 c (Altar 6).

The belly-down victim appears locally as early as Stela 10, style-dated by Proskouriakoff at 9.8.0.0.0 ± 2 katuns, and surely much later, on Stela 5, at 9.15.13.0.0. But its presence on altars is restricted to those before stelae dating from 9.15.5.0.0 to 9.18.0.0.0 (Altars 6, 8, 9, and 10). This also tends to confirm the presumption of contemporaneity of all these altars with their stelae, including Stela 22 and Altar 10.

STELA 23

Location:	Approximately 500 m. south of Temple VI. Reset large top fragment, found erect; placed axially before small structure, .87 m. from nearest masonry.
Associations:	No altar; sub-stela cache; see Coe and Broman, Tikal Report No. 2.
Dedicatory Date:	After 9.3.16.8.4 (latest surviving CR date; DD tun-end record probably on missing bottom portion; IS partly restored as 9.3.9.13.3 8 Akbal 11 Mol).
Style Date:	See text.
Condition:	Plain butt and lower portions of carved surfaces missing; large fragment missing from top right; front badly flaked off and weathered, perhaps intentionally mutilated; surviving surfaces on sides and back in fair condition, but blurred by weathering.
Photographs and Drawings:	Figs. 20–21 of this report; Figs. 1–4 ; 7 of Tikal Report No. 2.
Other References:	Coe and Broman, Tikal Report No. 2: Satterthwaite, Tikal Report No. 3: Shook, 1957, p. 45.
Carved Areas:	Class 4: FLRB / Morley Class 6. One human figure on front, body and head in front view; full-scale profile human figures on sides, facing front corners of stone; 4-column inscription on back; probably no other glyphs.
Material:	Limestone.
Shape:	Top largely missing, sides straight and parallel; cross section rectangular with slightly bulging sides.
Dimensions:	Maximum width and thickness: .75 x .42 m. Maximum depth of relief: front, 80 mm.; sides, 21 mm.
Comparisons:	Stelae 14 and 25 (same class); Stelae 10, 12, and 25 (high relief of figure on front).

GENERAL REMARKS

The finding of this monument and extensive excavations at the location are described by Coe and Broman (Tikal Report No. 2). It was brought to camp as a protective measure. The known top fragment provides the best evidence that Tikal shared the practice of re-erecting portions of broken monuments with Yaxha and Caracol, in the same general region (see Tikal Report No. 3).

The Initial Series, 9.3.9.13.3, involves so much restoration as to amount to a reconstruction; with that determined, a second date is fixed at 9.3.16.8.4. By a generally valid rule that a dedicatory date is a tun end and the latest date given, or close to it, the DD here could be as early as 9.3.17.0.0. As shown below another secondary series almost certainly led forward to an actual record of the DD, but since it is almost entirely missing some later tun end is possible. Consequently any stylistic control is desirable.

Unfortunately destruction of human figures is so extensive that style dating with a $\pm$ 2 katun leeway in the Proskouriakoff system is not feasible (personal communication). However, sharings of certain traits which are not diagnostic in that system suggest that the actual DD need not have been much later than the early limit for it fixed by the epigraphy. We list three interesting traits shared with other stelae at Tikal and nearby Yaxha and Uaxactun, with the dating controls which they afford. They all seem to be rare in the "Early Classic" of the region; so far as the datings are specific, the time spread is within the first quarter of Baktun 9.

a.	Full-front head and torso	Tikal Stela 4	Early Classic ?
		Uaxactun Stela 26	9.0.10.0.0
		Uaxactun Stela 20	9.3.0.0.0 ?
b.	Deep relief of figure on front	Tikal Stela 25	9.4.3.0.0
		Tikal Stela 12	9.4.13.0.0
c.	Full-scale standing figures on sides, facing front corners	Yaxha Stela 7	Early Classic
		Tikal Stela 25	9.4.3.0.0

The linkage with Stela 20 of Uaxactun is stronger than indicated above. On this Uaxactun monument the problem was to show four instead of two subordinate human figures, and these are kneeling, not standing. Two of the figures are on the front, but the other two are on the sides, sandwiched in between glyphs. The effect is different, but the same basic convention of treating the front and side surfaces as if they were continuous seems to be involved. On Stelae 1 and 2 of Tikal this convention is very clear, though only one figure is involved. The later of the respective mean Proskouriakoff style dates for these two stelae, (9.3.10.0.0 ± 2 katuns) is slightly earlier than our early limit for the DD of Stela 23.

A generalized feature of the inscription is another rare trait which at least fits the picture of a DD for Stela 23 at or not much later than the early limit for it. This is the suppression of Glyphs X and A of the lunar series, as on Stela 12 at 9.4.13.0.0, after these glyphs had already appeared at Tikal at 9.2.13.0.0 (Stela 3). Such short moon records go back to 8.16.0.0.0 (Uaxactun Stela 18) and may have been the general or even universal rule at first (Thompson, 1950, p. 257). The Tikal examples are noted again in discussing first appearances (pp. 129–132).

It might be argued that Stelae 23 and 25 do not belong far apart chronologically because they were found in the same general part of the site, far removed from other early stelae. This argument is weakened, however, by the possibility that they may have been moved from original locations by considerable distances (see Tikal Report No. 3, pp.74–75).

In the future, the missing lower portion of stela 23 with the missing dedicatory date may be found. In the meantime it seems best to use a plus sign after its latest known "odd" date. It probably belongs close to Stelae 6, 25, and 12, and a wrong guess as to the precise tun end would affect the sequence among them. Somewhat speculative reasoning suggests 9.3.17.0.0 to 9.4.16.0.0 as probable limits for the Dedicatory Date (see below).

COMMENT ON THE INSCRIPTION

The restorations and interpretations in the glyph tabulation below are so numerous and interrelated as to require justification for not using question marks with the results in the Summary. First we consider reasons for doubts, and then turn to their elimination.

Dots are restored in three IS coefficients. There is always room for them, but no surviving and convincing actual evidence of their former presence on the stone. However, these rows are more badly weathered than the others.

The month sign at A4 is read as Mol. If there was once a ring of dots they were tiny incised ones which have completely disappeared from the oval frame. There is a peculiar superfix, and none would be expected if this is Mol. However, it is not a known superfix for any other month. The glyph must be presumed to be a month sign because it is not Glyph B, X, nor A, yet follows

Stela 23: Glyph Classification and Chronological Decipherment

(Order of reading: left – right and downward by rows of three blocks. Number of blocks: surely 18, probably 24)

	Back	
	A1	ISIG (eroded, partly missing, variable gone)
	B1–C1	9 baktuns, 3 katuns (head variants)
	A2	9 (restored) tuns (head variant; coefficient is 1 bar with available space for dots)
	B2	13 (restored) uinals (head variant; coefficient is 2 bars and 2 dots, with available space for 3d dot)
A 9. 3. 9.13. 3	C2	3 (restored) kins (head variant; coefficient is 2 dots, with available space for 3d dot).
	A3	8, Day sign (faint traces of incised detail make Akbal preferred reading)
	B3	6, Glyph D (by position—unusual form with shell [?] instead of hand)
	C3	2, Glyph C (traces of incised lines show fingers of hand)
	A4	11, Month sign (all traces of incised detail lost; restored as 11 Mol—see text)
	B4	"Frog head on end" (?) with moon-sign postfix
	C4	1 non-chronological glyph
6.13. 1	A5–B5	1 (kin), 13 uinals, 6 tuns (No SSIG; kin coefficient is thumb; trace of incised detail of symbolic uinal sign, none of tun sign; "horseshoe" border of latter extends to bottom of glyph; note central elements of subfixes)
B (9. 3.16. 8. 4)	C5–A6	11 Kan 17 Pop (Upper filler of coefficient of Kan is cross-hatched; lower one has incised circlet and half circle of dots)
	B6	1 non-chronological glyph (bottom missing)
	C6	Glyph with coefficient of 15 or more (all but top missing; kin term of SS, presumably, with kin term not suppressed)
	Missing blocks ?	

Summary of Chronology

A1–A4	Date A	IS	9. 3. 9.13. 3	8 Akbal, MA 6, MN 2, 11 Mol
A5–B5		SS	6.13. 1	
C5–A6	Date B		(9. 3.16. 8. 4)	11Kan17 Pop
C6–		SS ?		
Missing blocks ? DD ?				

Glyph C, as does the month sign on Stela 12. The control of the ISIG variable is lost.

In Date B the coefficient of Kan at C5 is read as 11. Had erosion been more advanced here, readings of 12 or even 13 would seem more probable. We interpret the cross hatching on the upper element and incised decoration on the round lower one as indicating that they are non-numerical fillers. But if even a round dot could be thus made non-numerical, incised indications of it may have weathered away on some of the round dots of the IS and SS, and round or other fillers, rather than numerical dots, may have flaked off there.

Validity of the decipherments. Because of the above factors it seems best to show, by elimination, that our summary must be correct, unless one is arbitrarily to assume Maya mistakes. Let us assume complete liberty in turning apparent dots to fillers, in restoring either fillers or dots in available spaces, and in seeing only one bar where there may be two. We can thus fix absolute extreme limits for the IS, and alternatives for the SS and Date B, as follows:

IS	SS	Date B
9.1. 5. 6.1	6.11.1	11 Kan 17 Pop (9.3.16.8.4)
to	6.12.1	12 Kan 17 Pop (9.3. 4.5.4)
9.3.14.13.3	6.13.1	13 Kan 17 Pop (9.2.12.2.4)

The Long Count positions given for Date B alternatives are the only ones possible if one of the SS alternatives is to connect it with an IS number within the extreme limits for that.

We may theoretically subtract each of the three SS alternatives from each of the Long Count positions for Date B alternatives, to obtain theoretical IS values. In each case we will reach 11 Yax, 11 Chen or 11 Mol at a day Akbal; but only by choosing 6.13.1 as the SS, and the 11 Kan alternative for Date B, can we reach 8 as the coefficient of Akbal. So this is our choice.

Leaning over backward, however, let us assume that the Akbal coefficient may have had two bars, and 1, 2, or 3 functioning dots; i. e., that it could have been 6, 7, 8, 11, 12, or 13. This gives us only one further choice, an IS 9.2.5.9.3, which is 6.11.1 before the 13 Kan alternative for Date B. But then we are assuming that the decorated elements in the Kan coefficient are numerical and abandon any reason for supposing that two of the three dots in the uinal coefficient of the SS may have been non-numerical. In addition to this theoretical absurdity, we would have to assume a bad mistake in the recorded moon age.

All the theoretical alternatives require Akbal for the IS, for which there is some slight surviving evidence; the kin term must be 3. The only possible choice among the alternatives requires restoring one dot in the uinal as well as in the kin place, and four in the tun place, as in our Summary. In each case the space is available.

The correctness of the result is confirmed by an average moon age of 6.26 days, with a deviation of only + 0.26 days from the recorded 6 days. For discussion of lunar deviations see pp. Date B was surely 11 Kan, the coefficient being supplied with strange types of fillers not used elsewhere in the inscription.

We are in a period for which monuments are scarce in the Maya area as a whole, and a new variant type of month sign would be expectable here, if anywhere. Whether the characteristic ring of dots was really absent is debatable. A superfix for Mol is unexpected, but the one used does not belong with any other month. There are three joined elements. The damaged left one is perhaps circular in outline; the two at the right are L-shaped.

It is debatable whether there is a shell sign in Glyph D; the element seems definitely not to be a hand. The moon sign is clear, and position before a normal Glyph C requires this to be Glyph D.

Length of the inscription: "odd" tun marker ? By estimating the minimum Height A of the stone (base of design to top) we can arrive at a minimum estimate of the number of missing rows of glyphs. For this purpose we assume there

was no "pedestal" and that side and front figures stood at the same levels. The lowest Height A known is that of Stela 15, 1.32 m. Trying this here, the figure on the left side can be given legs which, if possibly a little short, are not unbelievably so. We adopt this as a minimum. Since this is the widest of the early stelae of "Group 1" in the table of dimensions on p.117, the resulting width index is much higher than any known ones for that group—57%, surely a maximum, for the group.

For the minimum height assumption, missing 7th and 8th rows will bring the base of the design on the back close to the assumed base level on the other surfaces. This will permit the following guess as to what the missing lower portion could have shown.

C6	Probably 16 kins of an SS, kin sign not suppressed
A7	Probably 9 uinals of an SS (to reach a tun end)
B7	Non-chronological, or ? tuns of SS
C7	SR date
A8	VYr date
B8	Tun or katun number (cp. St. 12, after IS VYr. date)
C8	Tun completed (cp. St. 12, after tun number)

The coefficient at C6 certainly contained three bars, so placed that a missing single dot is possible if not probable by inspection alone; the obvious probability is that 9 uinals and 16 kins of an SS lead forward to a day Ahau at a dedicatory tun end. If so, sufficient survives at C6 to show that the uinals are at A7. By analogy with Stela 12 we would expect two blocks for period-end indication, as well as two blocks for the CR date. If our minimum height for the design on sides and front of the stone is too low, it does not follow necessarily that it is too low for the inscription. On Stela 14 there is a 13 cm. difference between base levels of side and back; on Stela 1 the base of the inscription is higher than the design base on other surfaces by 50 cm. or so.

This speculation, for what it is worth, places the dedicatory date between 9.3.17.0.0 (no tuns in the SS) and 9.4.16.0.0 (maximum of 19 tuns in the SS). It does not allow room for a katun term in the SS. Since 9.4.0.0.0 and 9.4.13.0.0 were marked by Stelae 6 and 12 respectively, and there is no local evidence for half-period marking, Stela 23 may well be an odd tun marker within the above limits, like the similar Stela 25. If within these guess-work limits, it may belong between Stelae 7 and 6, 6 and 25, 25 and 12, or shortly after Stela 12.

In suggesting the visual height in Figs. 20e and 21b, .10 m. for plain exposure is added to the assumed minimum 1.32 m. of height above the feet of the figures.

STELA 24

(Formerly Stela D8 in Morley enumeration)

Location:	On plaza floor, axially before Temple III in Morley's Group D, at base of stairway debris.
Associations:	Carved Altar 7; Temple III in some phase.
Dedicatory Date:	Unknown.
Style Date:	Late Period ? (see text).
Condition:	Large upper fragment broken off from more or less undisturbed lower portion, lying face down; many small fragments of front scaled off and recovered; others possibly under the fallen fragment; carved sides very badly weathered, front fragments in good condition apart from fragmentation.

Photograph:	Fig. 26 of this report.
Carved Areas:	Class 3: FLR / Morley Class 3. Fragments from front show foot of human figure, parts of an inscription of two or more columns. Sides carried glyphs atypically arranged in three columns placed forward of a central position.
Material:	Stratified limestone.
Shape:	Not carefully noted: apparently top is rounded, sides parallel, cross section rectangular with bulging sides.
Dimensions:	Approximate maximum width and thickness: 1.16 m. x .60 m. Approximate height above floor: 2.25 m.

GENERAL REMARKS

In 1957 Shook discovered 3 rows of badly eroded glyphs on each of the sides of this monument, supposed to be a plain one by earlier investigators, and noticed a carved fragment partly buried nearby. Coe cleared around the fallen top to a plaster floor, in order to make sure that fragments would not be carried off by visitors. He recovered about 100 fragments, a few sizable and many very small. Some are from Altar 7.

There appears to be some chance that when the heavy top fragment is turned, part of the design on the front will be intact, or restorable as a mosaic of thin fragments which have split off. The known human foot is only about 13 cm. long and may belong to a subordinate figure. There may or may not be a reference to the dedicatory date on the front; one fragment (No. 17) shows 1 kin and 10 uinals of a secondary series. A probable CR date on the right side has month coefficient of 19. A hasty examination indicated that no surviving tun end will be identifiable on the sides. Each side had more than 10 rows of three blocks each. Thus the main inscription was probably more than 60 blocks in length. The glyph columns are forward of the usual centered positions on sides. The blocks on the front are likewise in relief, but quite small; they may have been fairly numerous.

On the basis of dimensions this stela belongs in the late rather than the early Tikal period, though possibly its correct dedicatory date would reduce "Gap 2" in the sequence (see table of dimensions on p. 117). Further hints of lateness are the association with an altar with quartered design on the periphery, and with mat design panels, as on Altar 10 (9.17.0.0.0); and a fragment of featherwork which looks like Proskouriakoff's Type IV–CI. Only in the relatively high number of glyph blocks does it thus far recall some of the early-period stelae. However, Stela 16 (9.14.0.0.0), the earliest of the known late-period series, probably carried part of a 43-block inscription continued on its altar.

Coe reports fragments of the front in direct contact with the buckled plaster floor, about 20 to 30 cm. below present surface. The floor was not penetrated, for lack of time. Shook's sharp eyes have provided the only potentially datable stone monument which can be stratigraphically related to one of the Great Temples with its carved wooden lintel. Coe's cleaning and careful photography and drawing of the Temple III lintel show that it cannot be dated epigraphically but should provide a satisfactory style date curve. (Coe, 1958). That much at least should be available for the stela also, when it is properly investigated.

STELA 25

Location:	Found lying on surface at side of road to Naranjo Aguada, approximately 200 m. southeast of Stela 23 group.
Associations:	No altar; among mounds but possibly not at locus of resetting; (see Tikal Report No. 3, p. 82.
Dedicatory Date:	9.4.3.0.0 1 Ahau 3 Yax (IS).
Style Date:	Early Tikal period (see text).
Condition:	Plain butt and large protions of carved surfaces missing; front badly flaked off, perhaps intentionally; weathered; sides slightly blurred by weathering; upper glyphs on back moderately to extremely weathered, lower ones smoothed down to illegibility.
Photographs and Drawings:	Figs. 22–23 of this report.
Other References:	Satterthwaite, Tikal Report No. 3; Shook, 1957, p. 45.
Carved Areas:	Class 4: FLRB / Morley Class 6. One human figure on front, profile head faces observer's left, torso in front view; full-scale human figures on sides facing front corners of stone, each with small glyph panels; 4 columns of glyphs on back.
Material:	Limestone.
Shape:	Top flat with asymmetrical rounding to sides, parallel straight sides (?); cross section rectangular with slightly bulging sides.
Dimensions:	Maximum width and thickness: .70 m. x .40 m. Maximum depth of relief: on front, 50 mm.; on sides, approximately 20 mm.
Comparisons:	Stelae 14 and 23 (same class); Stelae 10, 12, and 23 (high relief of figure on front).

GENERAL REMARKS

The reshaping at the bottom and along the right side of this top fragment seems to guarantee that it had been re-erected, like Stela 23, or at least that this was intended (see Tikal Report No. 3). It provides the earliest sure dating for deep-relief carving and human figures on the sides. There is some reason to think the largely missing inscription dealt with a change in the moon-numbering system (see p. 133).

COMMENT ON THE INSCRIPTION

The Initial Series and presumed Dedicatory Date reading of the tabulations below is as made from the original by Shook and Coe when the stone was first found. No coefficient is really doubtful, though the four dots for the katun are weathered, and the zero kin coefficient looks like an incomplete version of that for the uinals. The kin coefficient cannot possibly have been a bar and/or dot numeral. The day number of the SR date is a clear 1, Glyph G is the 9th form, and the month must be Yax (because the variable of the ISIG is a clear Venus sign). Granting the above, it is impossible to suppose that filler elements in katun or tun coefficients have weathered down to look like dots.

In the glyph tabulation it is suggested that there may be a secondary series at D2, but this is perhaps doubtful. Although the inscription was a lengthy one by local standards, it does not follow that other dates must have been recorded. Stela 16 at Caracol notes only the end of the katun in which this tun end falls, but the inscription runs to 37 blocks. If there were any secondary series here on Stela 25 the presumption is that dates in the past were being discussed. There is no reason to doubt that the IS is a rare example of a dedicatory "odd" tun end.

Stela 25: Glyph Classification and Chronological Decipherment

(Order of reading: main inscription opens on back, to be read left—right in double columns; uncertain whether panels on sides continue same inscription or, if so, in what order. Number of blocks: certainly minimum of 56 + 8 + 6 =70 ; estimated maximum is 80 + 8 + 6 = 94)

	Back	
	A1	ISIG (variable is complete Venus sign; superfix has central element similar to that of Leyden plate)
9. 4. 3. 0. 0	B1–B3	9 baktuns, 4 katuns, 3 tuns, 0 uinals, 0 kins (head variant period glyphs; see text for any doubts occasioned by erosion of coefficients)
	A4	1 Ahau (day sign eroded but must be Ahau)
	B4	Glyph G9 (eroded and partly missing, but identifiable by outline form)
	A5	Glyph E variant without coefficient (?—see text)
	B5	Glyph D without coefficient (?—see text for possibility of record of zero moon age)
	A6–B14	18 missing or illegible blocks
	B15?–	Other missing blocks ? (estimated maximum is 12)
	C1–C2	3 non-chronological blocks
	D2	SS of 5 kins and 3 uinals ?? (details of possible uinal sign lost, and note postfix and subfix; latter is neither the usual "distance number postfix" nor the variant used on Stela 23)
	C3	Non-chronological glyph ? (eroded, but may have been double Cauac sign with Yax prefix and ISIG superfix—see text)
	D3	1 non-chronological block
	C4	8, "moon-with-enclosed-dot"
	D4–D14	21 blocks, destroyed or largely illegible
	C15?–	Other missing blocks ? (estimated maximum is 12)
	Right side	
	E1–F1	CR date ? (coefficients are 5 and 7, details of glyphs lost)
	E2–F4	6 non-chronological blocks
	Left side	
	G1–H3	6 non-chronological blocks

Summary of Chronology

A1–B4	IS	9. 4. 3. 0. 0	1 Ahau, G9
A5–B5			MA 0 (?)
A6–?			Rest of Lunar Series (?); 3 Yax (?)

This finding invalidates one of Morley's assumptions in trying to reconstruct early dedicatory dates where full data are lacking—an assumption that, since the earliest "odd" tun-end date known to him was at 9.7.8.0.0, the possibility of others before 9.6.0.0.0 "may probably be eliminated at once" (1937–38, I, p. 203, where he is dating an incised red-ware bowl at Uaxactun). By "odd" tun end we mean one other than the 5th, 10th, 13th, 15th or 20th tun of the katun, though he included the 13th among "odd" tuns. At Tikal he properly allowed for a 13th tun marker as early as 9.2.13.0.0 (Stela 3).

We have suggested that at A5 we may have the first of two glyphs recording zero age. The glyph comes after Glyph G, is not Glyph F or a month sign. Suppression of the month sign is possible but unexpected, and it is very often moved ahead by insertion of a lunar series. The glyph is badly eroded. While it is not an ordinary Glyph E sign, there appears to be much variability in the glyphs used to record completion of the moon or "zero" age (see Thompson, 1950, p. 240). The badly eroded prefix at A5 might be a "jade" symbol; the main sign could be a shell. If there was a lunar series at all, the age was surely zero, and this fits the date. The standard average age is 28.83 days, a deviation of –0.70 from 29.53 or average "zero."

The Venus sign in the ISIG is of the complete variety, with four instead of two disks. Apparently this is the first recorded example of this type in the ISIG (Thompson, 1950, Fig. 22, 50–59). The central element of the ISIG superfix is not the usual crescent form, but in outline is a narrow rectangle, recalling that of the same prefix on the Leyden Plate. This detail tends to confirm other evidence linking the jade plaque with Tikal. The glyph at C3 shows this same ISIG prefix over a double-glyph main sign, and there is a prefix. Though all incised details are lost, the main sign is probably a double Cauac, as in baktun and higher period glyphs, and the prefix is probably the Yax sign. Though these identifications are merely permitted by the outline forms, future publication of a high fidelity cast of part of wooden Lintel 3 of Temple 1 will show such a glyph clearly, where it follows and apparently refers to a date 9 Ahau 13 Pop. Here the glyph (if it is really the same) follows a possible SS and was certainly not close to a CR date. The question of classification as chronological or non-chronological is left open.

Two blocks later, at C4, is an isolated "moon-with-enclosed-dot" glyph and a coefficient fairly clear as 8. It cannot record the correct moon age of the opening date (cp. the late Stela 22, where a similar record might have done so). Nevertheless, since we may have had other dates on Stela 25, this cannot be cited as a case where what looks like an isolated Glyph E definitely did not record a moon age. Stelae 25 and 22 together give a wide spread in time for these puzzling uses of the moon sign with coefficients.

Length of inscription. Surviving portions of figures on Stelae 23 and 25 seem to be at about the same scale. Making the same assumptions which gave 1.32 m. as a minimum Height A for Stela 23 gives 1.56 for Stela 25. Here we must include about .24 m. of height above the top of the headdress on the figure of the left side. It is this extra height which makes room for glyph panels on the side.

Using the above minimum height, if the inscription on the back reached to about the level of the feet of the figures on the side (and presumably on the center) there were 20 rows, and an estimated maximum of 80 for the back and 94 for the back and sides.

The glyphs on the back are smaller than those on Stelae 23 and 12, with four rather than three or two rows. This suggests that a long inscription was fitted into the maximum of space available. If so, this was the second longest known inscription on stone at Tikal, the longest being on Stela 17. On the latter, however, there are two and there may have been three Initial Series. Stela 25 may therefore rank as having the longest single text, unless Stela 14 surpassed it a little.

COMPARISONS AND INTERPRETATIONS

DIMENSIONS AND PROPORTIONS
OF CARVED STELAE OF EARLY AND LATE TIKAL PERIODS

The tabulation below provides the basis for useful dimensional distinctions between stelae of early and late periods. Unfortunately the many blank spaces reflect lack of full data in many cases. Conclusions based on what is known will, however, be useful in estimating original heights and proportions where these are unknown. The dimensions given should be taken as subject to future revision, but inaccuracies are unlikely to be significant. All known carved stelae are listed.

Many of the measurements given are from Morley and/or Maler. Those for Stela 21 are from Berlin, 1951. It should be noted that those measurements that may differ from published ones are by the writer, who checked all the early-period ones, as well as Stelae 19 and 22, so far as possible without moving heavy stones. In the interest of standardization the writer's figures correspond to the specifications below, and Maler and Morley seem generally to have measured in the same way.

Widths are the maximums for the stone, including plain borders and the usual slight bulging of the sides. Thicknesses are likewise supposed to be maximums. Unless the stone is on edge they are likely to be less accurate.

To avoid possible misconceptions, height is divided into two segments tagged with the letters A and B. Height A (HA) is measured from the base of the carved design to the highest point of the stone. It includes a plain border at the top, if any, and a little more height occasioned by the convexity of the top, as seen from the side. Height B is measured in the same way, but from the lowest point of the stone to the same base of the carved design. If both HA and HB are known, they may be added to get the total maximum height or length of the stone, a figure strictly comparable with measurements for plain stelae, if those are maximums as seems to be the general rule. A further advantage in using maximum dimensions, rather than those on the face of a stela, is that these are most easily recoverable by scaling properly centered photographs.

If more than one surface is carved, Height A (and Height B) may differ on different surfaces; the side with the greatest Height A is chosen for comparisons. Thus, if everything is known, adding to HA an allowance for exposure of the plain butt gives the apparent, visible total height of the stone as first erected.

If there is no plain border, Height A is usually (but not always) very close to the height of the carved design, but it may be considerably more than the height of a human figure. If interest centers on that, it should be measured separately.

Our HA figure for Stela 9 is .23 m. more than Morley's height of "the sculptured panel" because in that special case he did not include the height of a peculiar uncarved bulging area at the top

left. Our Height A for Stela 3 includes .09 m. for a previously overlooked design below the human figure, although it is merely incised, not carved in relief. To obtain Height B, excavation is required; the stela is standing, not fallen as Morley seems to imply. His 1.98 m. for the total length is Maler's 1.53 m. for the height above the base line for the figure, plus Maler's guess of .45 m. for the still-buried and supposedly entirely plain portion below. Morley's width of .86 m. for Stela 15 is doubtless a misprint for .56 m, within a centimeter of our .55 m. Otherwise, differences from published dimensions are of this minor order, such as are inevitable in different sets of measurements of this sort of material.

DIMENSIONS OF 25 CARVED TIKAL STELAE

		HA	*W*	*HA/W*	*Th.*	*HB*	
Group 1							
	St. 1		.64		.42		
	St. 18		.56		.46		
9. 2. 0. 0. 0	St. 9	1.64	.65	40%	.40	.47	
	St. 13	1.42	.60	42%	.37	.50	
9. 2. 13. 0. 0	St. 3	1.63	.60	37%	.39		
9. 3. 0. 0. 0	St. 7	1.47 ?	.57 ?	39% ?	.45	.43	
	St. 15	1.32	.55	42%	.58	.51	
	St. 2		.66		.40		
	St. 8	1.49	.53	36%	.44	.37	
9. 3. 16. 8. 4 +	St. 23		.75		.42		(Relief 80 mm.)
9. 4. 0. 0. 0	St. 6		.65 ?		.44	.63	
9. 4. 3. 0. 0	St. 25		.70		.40		(Relief 50 mm.)
9. 4. 13. 0. 0	St. 12		.70		.46		(Relief 50 mm.)
9. 6. 3. 9. 15 +	St. 17		.65		.60		
Group 2							
	St. 4	1.37	.81	59%	.36		
	St. 14		.82 ?		.50 ?		
	St. 10	2.10	.93	44%	.53		(Relief 100 mm.)
Group 3							
	St. 24		1.16		.60 +		
9. 14. 0. 0. 0	St. 16	2.24	1.32	59%	.35		
9. 15. 5. 0. 0	St. 21	2.17	1.12	52%	.34	.83	
9. 15. 13. 0. 0	St. 5	2.12	1.12	53%	.40		
9. 16. 0. 0. 0	St. 20	2.24	1.17	52%	.37	.79	
9. 17. 0. 0. 0	St. 22	1.98	1.17	59%	.50		
9. 18. 0. 0. 0	St. 19	1.84	1.17	69%	.50	.69	
10. 2. 0. 0. 0	St. 11	2.33	1.25	54%	.63	.94	

Note: Grouping is by "narrow," "intermediate," and "wide" stelae. Within groups, dated stelae are in chronological order. St. 24 is placed arbitrarily at beginning of Group 3. In Group 1, undated stelae are inserted arbitrarily as if limited to Proskouriakoff mean style dates (for her limits see p. 124). In Group 2 arbitrary order is that of increasing width.

Key to abbreviations: HA (Height A) is up from, and HB (Height B) is up to level of lowest carving (see p. 116); W is width, Th. is thickness.

Groupings of stelae in the table. As noted below the table itself, three groups are distinguished on the basis of absolute widths. We have a total of 25 carved stelae. Among these, fourteen range only 20 cm. downward from .75 m., and eight range

only .20 m. upward from 1.12 m. in this dimension. For local comparisons it seems appropriate to call any Tikal stela a "narrow" one if it is .75 m. or less in maximum width, and to call it a "wide" one if this dimension is 1.10 m. or more. On this basis all firmly dated late stelae, and Stela 24 as well, are found to fall in the wide Group 3, while the narrow Group 1 contains all the firmly dated early Tikal stelae and also those others which are most satisfactorily assignable to that period on the basis of style (see next section). This surely is significant, though we are dealing with absolute widths, not proportions of widths to heights.

Three early-period stelae (Stelae 4, 10, and 14) are assigned to a separate Group 2. As we have them, the widths are intermediate, but close to those of the narrow group. Admittedly there is an arbitrary element in choosing .75 m. as the upper limit for a "narrow" stela. None of these three is firmly dated, and only one of them, the widest, has the ± 2 katuns control of a satisfactory Proskouriakoff style-date graph (St. 10, 9.8.0.0.0 ± 2 katuns). The order in which these three appear in the table is that of increasing width, which may or may not be the chronological order.

Within Groups 1 and 3, the stelae are arranged in chronological order, so far as possible. In Group 3 the only doubt as to position in the sequence is with Stela 24, as shown by the firm DD's for the others, given at the left. Thus we know that wide stela blanks showing little variation in widths were being quarried from 9.14.0.0.0 to 10.2.0.0.0. In Group 1 the given DD's show a spread of narrow stela blanks from 9.2.0.0.0 till after 9.6.3.9.15. The other stelae in this Group 1 are inserted as if their DD's were the same as Proskouriakoff *mean* style dates. There is thus an arbitrary element in the sequence within the Group 1 list. The mean style dates are given on p. 124, as well as the suggested ± "spreads" from them, which are indicated graphically in the table on p. 120. The spreads would permit actual dedicatory dates for Stelae 15, 2 and 8 falling between those of Stelae 12 and 17, within "Gap 1" in the Early Period sequence.

In dimensional Group 2, only Stela 10 affords satisfactory style date control. The ± 2 katuns spread permits (but does not require) an actual position between Stelae 12 and 17, also within Gap 1. The early limit is 9.6.0.0.0 unless the standard spread is increased in the early direction. It occurs to one that the intermediate width may have a developmental significance, and that this may be so for Stelae 14 and 4 also. If so, all three belong after Stela 12 (see special note on p. 125).

DIMENSIONS AS PERIOD INDICATORS FOR CARVED TIKAL STELAE

It seems likely that carved and plain stelae of the same period corresponded more or less in dimensions and proportions. Thus any valid inferences respecting carved ones may be useful in relative dating of plain stelae, as well as in dating damaged carved ones which may be discovered in the future. Though we should keep an eye on Group 2, the safest inferences must be based on the ranges of Groups 1 and 3, where the dating controls are most reliable.

Thickness. Morley intimated that late plain stelae were higher and also thicker than early ones (1937–38, I, p. 381). Our table does not indicate any consistent period differences in thickness among the carved ones.

Width. Here we deal with the only other basic dimension known for all the monuments of the table. On the basis of Groups 1 and 3 only, widths of .75 m. or less, and of 1.10 m. or more, seem to be reliable early- and late-period indicators, respectively. The maximum for Group 2 is still decidedely less than the minimum for Group 3.

Height A. Unfortunately this is missing for eight of the fourteen stelae of Group 1, and for one of the three of Group 2. The full range for Group 1 may or may not be covered by the six examples given; for the early period (of Groups 1 and 2 combined) the maximum design height exceeds those of two late-period stelae of Group 3. A design height of 1.65 m. or less would appear to be a reliable early-period indicator; but higher ones do not necessarily indicate lateness.

Proportions. It will probably be found that the Height A of Stela 24 will yield a width index well within the 50%–64% range of Group 3. We have no reason to assume that the 37%–42% range of the six known indexes for Group 1 covers the full range for that group, and the index of Stela 4 in Group 2 is substantially higher. The known indexes for Groups 1 and 2 combined suggest a tentative rule that stelae with width indexes of 45% or less were confined to the early period, while stelae with higher ones were known in both periods.

Stelae 15 and 17 could be described as "square columns," with approximately equal widths and thicknesses. This is an exclusively early-period feature which appears at middle and late positions in the Group 1 sequence as we have it. There is no reasonable doubt that more conventional cross sections intervened between Stelae 15 and 17, and this characteristic seems to have no chronological value respecting position within the early period.

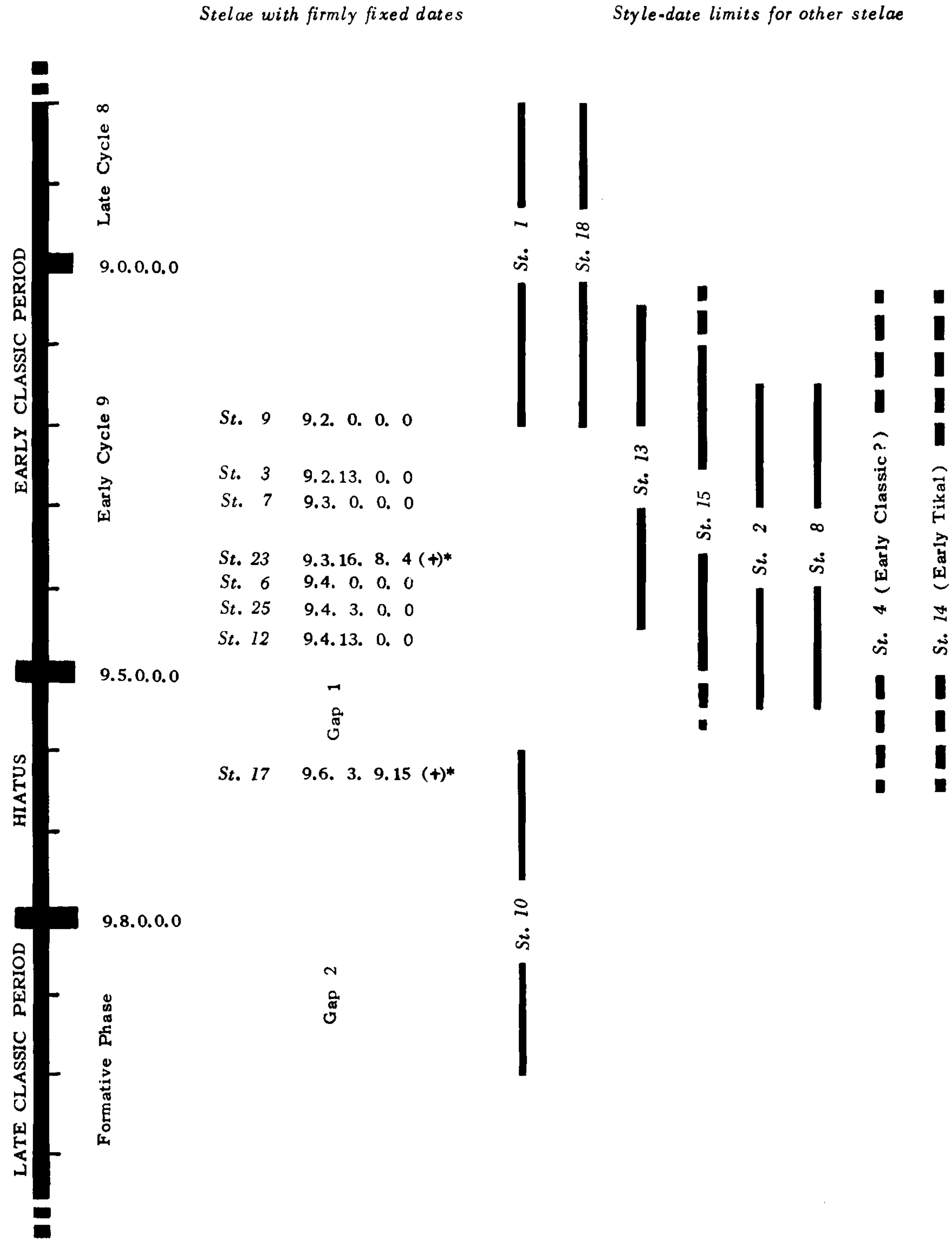
Note on Stelae 4, 10, and 14 of Group 2. The widths of the stelae of Group 1 vary within a range of only .20 m., and whether we consider all the entries or only the firmly anchored ones, the variations clearly have no chronological significance. But the somewhat greater widths of Group 2 may all belong at or near the end of the early sequence, and so might have a developmental significance. In the case of Stela 10 this seems probable. Its width is the greatest in Group 2, and this is combined with a Height A decidely greater than any of the known ones of Group 1. Its relative-width index, unlike that of Stela 4, is not far outside the limits for Group 1. Stela 14 could be restored in the same proportions. Stela 4, is unique in many ways, including a truncation of the human figure which lacks hips and legs, and it has an unusual pointed butt. Conceivably a longer stone was broken accidentally before carving. That would account for the marked squatness of this stela and the lack of a complete figure on it. Thus, even if Stela 4 is very late in the Early Tikal period sequence, it seems possible that toward the end of that period there was a tendency toward higher and wider stelae; that is, toward larger ones but still of moderately slender proportions.

DEDICATORY DATES OF CARVED TIKAL STELAE

The new data on dedicatory dates on stone monuments are integrated with the old in the charts on pp. 120–121. These cover respectively the Early and Late Tikal periods, and may be considered as overlapping portions of a single table in which, as we move downward we move forward (later)in time, the scale being 4 lines per katun. Thus we obtain a visual indication of gaps in the known sequence of time-marking stone monuments-stelae, with or without altars. Datings of wooden lintels and of the Temple of Inscriptions (VI) are not here considered.

A second basic idea of these charts is to restrict them to dedicatory-date interpretations considered to be reliable in high degree. They provide an alternative to Morley's listing of dates in chronological order which are sure, together with others which are not, and even with those which are "little better than suggestions" (1937–38, I, p. 117). In spite of his system of 1, 2, or 3

DEDICATORY DATE POSITIONS—EARLY TIKAL PERIOD STONE MONUMENTS



* Plus-sign indicates dedicatory date was probably later, at a tun end.

DEDICATORY DATE POSITIONS—LATE TIKAL PERIOD STONE MONUMENTS

LATE CLASSIC PERIOD

Phase		*Stelae with firmly fixed dates*		*Style-date limits for other stelae*
Formative Phase		Gap 2		
	9.13.0.0.0			
Ornate Phase		*St. 16/Alt. 5*	9.14. 0. 0. 0	**St. 24/Alt. 7 (Late Tikal Period?)**
		St. 21/Alt. 9	9.15. 5. 0. 0	
		St. 5	9.15.13. 0. 0	
	9.16.0.0.0	*St. 20/Alt. 8*	9.16. 0. 0. 0	
Dynamic Phase		*St. 22/Alt. 10*	9.17. 0. 0. 0	
		St. 19/Alt. 6	9.18. 0. 0. 0	
	9.19.0.0.0			
Decadent Phase		Gap 3		
		St. 11	10. 2. 0. 0. 0	
	10. 3.0.0.0			

question marks indicating increasing degrees of doubt, such lists are likely to cause the resulting sequence of one monument after another to freeze in our minds. His "guess dates" are all listed and discussed separately below, but only three of them appear in our charts—in each case because they no longer seem doubtful.

In our charts, stelae with dates "firmly fixed" in the Long Count are listed in chronological order, at the left. On the right we cover the others with style-date limits, using vertical lines to indicate the amounts of "spreads" which probably reach or pass the unknown dedicatory date. Entries of both types are positioned with reference to the phases of Proskouriakoff's area-wide style-dating system, which are represented by labeled segments of the vertical line at the extreme left (1950). Though definite Long Count dates mark off these segments of time we are warned against using them blindly (see quotation on pp. 124–125).

Our scheme permits indicating the style-date limits of specific Tikal stelae without seeming to determine the sequence. Proskouriakoff limits are indicated when available, as being more objectively arrived at than Morley's. In six cases definitely terminated solid lines cover 4 katuns (Stelae 1, 18, 13, 2, 8, 10). These represent such estimates as 9.0.0.0.0 ± 2 katuns for Stela 1. Proskouriakoff gives only 9.3.0.0.0 ±? for Stela 15, and we indicate the standard 4-katun "spread" with broken-line extensions. Our spreads for Stelae 4, 14, and 24 are also of indefinite lengths, and are entirely in broken line, indicating that the Proskouriakoff system could not be applied (Stelae 14 and 24) or gave still more indefinite results ("Early Classic ?" for Stela 4). General experience suggests that when the ± 2 katuns leeway can be specified it is probably sufficient, but such limits are not claimed to be infallible, especially for Early Classic monuments.

Returning our attention to the "firmly dated" stelae, it should be remembered that judgment may be involved in determining the "contemporaneous" dedicatory date, even if the inscription is entirely legible. Discussion of this problem will be found in Thompson, 1950, p. 155, and Proskouriakoff, 1950, pp. 9–10. The tun ends which we give conform to the latter's principles except that the largely missing or destroyed inscription of Stela 25 is not short, and we cannot guarantee that there was no Secondary Series.

We have inserted dates recorded on Stelae 23 and 17 which are not tun ends, hence probably not dedicatory dates, adding (+) to suggest that the dedicatory dates probably were later, not earlier. This seems a sufficient indication that Stela 23 may belong somewhat later in the sequence. In both cases dedicatory tun ends may have been recorded, and it is not inconceivable that they may be recovered on missing lower portions of these stelae.

GAPS IN THE FIRMLY DATED SEQUENCE

Katun marking is in evidence at beginning and end. We have numbered three "gaps," which may be arbitrarily defined as periods during which there are one or more katuns not surely represented by a sculptured marker of at least one of its tuns. Gap 1 is considered to be in the "Early Tikal" period, Gap 3 in the "Late Tikal" period, and Gap 2 separates those local periods. We use the term "gap" as differing from the "hiatus" of Proskouriakoff's style system, and also with the implication that a "gap" may exist in our knowledge rather than in reality.

The early-period chart shows clearly that Gap 1 may not be a real one, though it lies partly in the Hiatus period of the Proskouriakoff style scheme. The indicated controls would allow the following:

St. 14	9.5.0.0.0	(as placed by Morley)
St. 10	9.6.0.0.0	(choosing earlier Proskouriakoff limit)
St. 17	9.7.0.0.0	(choosing end of current katun)

The reasonableness of these particular assignments is discussed later. Stela 4 could belong in this gap and, stretching the limits only a little, so could Stela 2 or 8. The marking of those three katun ends is not established but it is possible and even probable because the marking of the three prior ones is certain, and illegible stones of suitable character have been found. Katun marking with sculptured stelae probably was quite regular in the early period as well as in the early part of the late period. It seems doubtful if it should be hypothetically projected back beyond 9.0.0.0.0, but Morley's 8.19.0.0.0 for Stela 18 is certainly possible.

While the precise DD of Stela 17 is unknown, we may use the 9.7.0.0.0 for it as possible and as convenient in defining Gap 2 as a 6-katun one ending at 9.14.0.0.0. It may be reduced a katun or so at the late end by Stela 24, when that is turned, but one doubts if it is going to be filled by new discoveries. As it stands, Gap 2 begins only a katun before the schematic end of the hiatus, and lasts twice as long. If we hypothetically fill Gap 1, as suggested, it is Gap 2, if any, which is to be equated with the area-wide hiatus.

TYPES OF TIME MARKERS IN THE FIRMLY DATED SEQUENCE

The only known 5th or 15th tun marker at Tikal is after 9.8.0.0.0, as expected. There is no sure local basis for assuming half-period ("lahuntun") markers. Instead, twice in the early period and once in the late period we find 13th-tun markers, very much rarer for the area as a whole, and for all periods. Morley reasonably suggests that Stela 5 is at 9.15.13.0.0 because this was the 13th katun "anniversary" of 9.2.13.0.0, marked by Stela 3. Since Stela 12 as a 13th-tun marker is only two katuns after that first one, it seems reasonable to suspect that in the early period the 13th tun was a regular division point of the katun, liable to be marked *instead* of the 10th tun, the "half-period."

During the early period we now have representation of the non-tun-ending IS, and also of the very rare marking of an "odd" tun (i. e., one other than the 5th, 10th, 13th, 15th, or 20th tun of the katun). Any local reconstruction which depends on excluding odd-tun markers would seem to be weakened in some degree (see below on Stela 15).

So far as we know, the functional considerations behind odd tun marking might by chance call for a dedicatory date at the 5th, 10th, or 15th tun although, for the given site and period, no *habit* of marking the quarters or the half-period existed. A fair ranking of the probablilities for damaged early Tikal stelae would appear to be in the order: 20th tun (katun), 13th tun, any other tun.

MORLEY'S QUESTION-MARKED DEDICATORY DATES

Eleven dates in this category are listed below, taken from Morley's Table 17 (1937–38, I, p. 377). Two others are also listed, where he lacked epigraphic control altogether. The question marks have been checked and in the case of Stela 12 adjusted to conform to synoptic headings for particular stelae. Corresponding style dates are given at the right, according to Proskouriakoff except for Stelae 14 and 17, which she did not attempt. For assignment of Stela 14 to the Early Tikal period see prior discussion of that monument. Stela 17 belongs there on the basis of Morley's judgment of glyph style. Its narrowness and square cross section are in agreement (see table on p. 117).

QUESTIONED DEDICATORY DATES AND CORRESPONDING STYLE DATES

St. 18	IS??	8.19. 0. 0. 0	10 Ahau	13 Kayab	??		9. 0. 0. 0. 0 ± 2 katuns
St. 8	PE	9. 0.10. 0. 0	7 Ahau	3 Yax	??	*	9. 3.10. 0. 0 ± 2 katuns
St. 13	PE	9. 1. 0. 0. 0	6 Ahau	13 Yaxkin	??		9. 2.10. 0. 0 ± 2 katuns
St. 4	PE	9. 1.10. 0. 0	5 Ahau	3 Zec	???	*	Early Classic ?
St. 1	?	Very early Baktun 9					9. 0. 0. 0. 0 ± 2 katuns
St. 2	?	Very early Baktun 9					9. 3.10. 0. 0 ± 2 katuns
St. 15	IS	9. 3. 0. 0. 0	2 Ahau	18 Muan	?		9. 3. 0. 0. 0 ± 2 katuns ?
St. 10	PE	9. 3.13. 0. 0	2 Ahau	13 Ceh	??	*	9. 8. 0. 0. 0 ± 2 katuns
† St. 6	IS	9. 4. 0. 0. 0	12 Ahau	13 Kankin	?		9. 3. 0. 0. 0 ± 2 katuns
† St. 12	IS	9. 4.13. 0. 0	13 Ahau	13 Yaxkin	???	*	Late Classic, Formative ?
St. 14	PE?	9. 5. 0. 0. 0	11 Ahau	18 Zec	??		Early Tikal period
St. 17	PE	9. 6.13. 0. 0	9 Ahau	18 Muan	??		Early Tikal period
† St. 19	PE	9.18. 0. 0. 0	11 Ahau	18 Mac	?		9.18.10. 0. 0 ± 2 katuns

Daggers before three stelae numbers indicate Morley readings now taken as established and hence used in the charts. For the others, the style-date "spreads" given at the right are represented graphically on the charts.

Stars before style dates indicate disagreement with Morley stylistic "spreads." Individual questionable Morley readings are given attention under various headings below.

Questioned katun markers. Stela 19, in the late period, is now definitely where Morley preferred it. The question mark for Stela 6 is now removed because Thompson has since shown that the required year date is present, and katun marking need not be assumed (1950, p. 136).

Stela 15 may well belong at Morley's 9.3.0.0.0, but the question is left open for several reasons. The IS reaches a clear 2 Ahau, occupies eight of a total of fourteen blocks, and is therefore probably the only date. It follows that 2 Ahau is probably a tun end. The month sign is missing, but the coefficient is either 13 or 18, the latter preferred. A check of the original shows that this preference is not quite so mandatory as Morley's drawing indicates. We must make a decision on this before excluding 13th-tun marking (9.3.13.0.0, which we do not think was marked by Stela 10—see below). Accepting 18 as the month coefficient, the probability that Stela 15 marked the katun 9.3.0.0.0 is somewhat balanced by a general probability against two markers of the same katun at this early time (Stela 7). The style-date limits are not specific. Coming forward (but not backward) less than 3 katuns from the style "guess date" as given, 9.5.12.0.0 2 Ahau 18 Uo becomes possible as an odd-tun marker, within our Gap 1.

The suggested readings of Stelae 18 and 13 not only lack IS control but involve very dubious interpretations of eroded glyphs, so far as inspection alone is concerned. There is no epigraphic control whatever over Stela 14 (see p. 86). In such situations it seems best to leave the question of precise dedicatory dates open. However, the class and the width of Stela 14, coupled with the probability of katun marking, make Morley's reading entirely reasonable, and there is nothing in the new stylistic approach to render the other two any more doubtful. They may well all be correct.

Questioned half-period markers. When we turn to these, the Morley assignment of Stela 8 to 9.0.10.0.0 is a katun before the new style limits. Proskouriakoff's question mark with "Early Classic" for Stela 4 presumably means doubt that it could be as early as 9.1.10.0.0 in the Early Classic. It shows a full front view of head and torso, like Stela 23, considerably later. We have already questioned whether there was any special likelihood of half-period markers here and at this time.

Questioned 13th-tun markers. Reasons for rejecting Morley's belief that 13th-tun glyphs appeared on Stelae 10 and 17 as period-end indicators were given in discussing Stela 12. A general probability that either katun or 13th-tun marking was involved may exist, but there is no satisfactory epigraphic evidence. On the other hand, we now know that his most doubtful 13th-tun stela, Stela 12, definitely was such (pp. 93–96).

Stela 17 still belongs late in the sequence on the principle that its DD was presumably later than its non-tun-ending IS. We have no epigraphic control whatever over Stela 10 unless one accepts a highly debatable Morley thesis respecting the 8-or-9-place number which makes it a species of elongated Initial Series. For alternative views see Morley, 1937–38, I, pp. 308–326, and Thompson, 1950, pp. 314–315. In view of the now known order of reading on Stela 12 both authors probably are wrong in reading the back last, and hence wrong in assuming that the kin term of the long number was suppressed. It probably was on a destroyed area at the top of the back.

Note on dedicatory dates of Stelae 12 and 10. We have just concluded that Stela 10 must be dated without specific epigraphic control. It is related to Stela 12, and Proskouriakoff discusses them together (1950, pp. 113–114). She notes a mixture of Early Classic and Late Classic traits, finds Morley's dates not satisfactory, and even speculates that they might have been carved after the late limit for Stela 10, for which a satisfactory curve seems to have been obtained (Stela 12 is more badly damaged). Factors cited suggesting relatively late positions are the high round relief of the human figures, and "the long inscriptions apparently covering aeons of time." As a matter of fact, the last characteristics apply to Stela 10 only.

We have now tied Stela 12 securely to 9.4.13.0.0, Morley's "unsatisfactory" date, and with it the high relief carving. Confirming that this is no chronological freak, Stelae 23 and 25 also show high relief carving, the latter as early as 9.4.3.0.0. It may well have appeared on Stela 14, which is of the same rare carved-surface class as Stelae 23 and 25, with full-scale figures on the sides. In absolute width, Stela 14 is intermediate between the general run of early, as opposed to late-period Tikal stelae. This helps to make Morley's 9.5.0.0.0 for it entirely reasonable. On the scale of the dimension table on p. 117, after skipping the strange Stela 4, Stela 10 comes next in width, still well below the minimum for late-period stelae. In proportion of width to height, the index of Stela 10 is not out of line with the known ones of early stelae, and the index is noticeably lower than for known late ones.

No other Tikal stela is known to have carried numbers involving such aeons of time as does Stela 10, but in respect to the length of the inscription it probably ranks with or below Stela 25. Unfortunately we do not know the content of that inscription, but it opened with a normal IS.

In the field Shook suggested to the writer that Stelae 10 and 12 do not belong very much later than the 9.4.3.0.0 which he had read on Stela 25. The other new data confirm. Having in mind the availability of Stela 14 as a possible marker of 9.5.0.0.0 (still possibly with high relief carving) 9.6.0.0.0 for Stela 10 would appear to be early enough. This is at the early limit yielded by Proskouriakoff's system of systematic analysis of time spreads of specific stylistic traits.

There is thus no conflict with the basic Proskouriakoff style system in this conclusion, but high relief carving and the famous very long distance calculation dating into the past do seem to have appeared at Tikal earlier than she thought. If Late Classic sculptural traits begin to appear in her hiatus period at a site where carved monuments were not in fact lacking, that is expectable. "The

phases are not to be conceived as periods, but as a series of overlapping trends, with the suggested dates roughly centered on the time when a particular trend is ascendant" (Proskouriakoff, 1950, p. 18).

THE LUNAR SERIES OF TIKAL: COMPARISONS

The new Tikal lunar series provides a small increment to the known total for the Maya area, but the importance of these additions is augmented by the scarcity of others of the Early Classic period. Andrews (1951) has published a critical list for all sites and periods running to 255 entries. If we select out those which are firmly anchored to dedicatory dates before 9.8.0.0.0, or to dates presumably not long before respective dedicatory dates earlier than 9.8.0.0.0, by the writer's count there are only sixteen entries for early-period comparisons. Two others reported since in Satterthwaite 1951b and 1954 (Caracol Stelae 15 and 16) can now be added, together with Tikal Stelae 12 and 23 and the somewhat questionable Stela 25 of this report. While the firmly dated sample for the early period is still disappointingly small, twenty-one instead of sixteen well-dated examples is a considerable improvement.

BACKGROUND REMARKS

While the general nature of the lunar count is known, various details of great theoretical interest remain unsettled (Satterthwaite, 1947, 1948, 1951 *b*). Thompson gives a general account (1950, pp. 230–246), incorporating the fundamental advances of Teeple (1930). A lunar series is what Morley called the Supplementary Series, after we exclude Glyphs G and F, if present. Normally it begins after one of these, or after the Sacred Round (SR) date of an IS, and ends with the glyph preceding the Vague Year date of the IS. Lettering of the glyphs is in reverse order, so that Glyph A, if present, comes last.

A convenient general symbol for the moon-age portion of a lunar series is E/D, meaning that either of these glyphs, or both (with or without prefixed coefficients), may record the age. This conforms with Teeple's use of these letters, and not to Thompson's restriction of "Glyph E" to one form—the complete moon sign with enclosed circle or dot, having the value of 20 days. With this understanding of variability in Glyphs E and D (especially when recording zero age), a "complete" lunar series outside the Usumacinta region can be represented by letter designations of the glyphs present, thus:

E/D–C–X–B–A

Complications in Usumacinta texts may result from use of glyphs labeled Z and Y, but may be ignored here. In the inscription of Yaxchilan Lintels 48 and 47 there is a missing space permitting one to restore the complete series as (Z–Y)–D–C–X–B–A, but glyphs Z and Y are absent in other lunar series fixed with precision in the period before 9.8.0.0.0.

Glyph C with coefficients 1–6 gives moon numbers (the glyph without coefficient is taken to imply moon number 1). Glyph A with coefficient 9 or 10 records what may be called one of two types of formal, calculated lunations, consisting of 29 or 30 days. As with the common form of Glyph E, the "moon-sign-with-dot" is read as 20 days, and the coefficient is added. Both are well standardized but they may be distinguished by inspection, since with Glyph A the coefficient is postfixed. Glyph X occurs in six recognized forms, X1 to X6, the selection depending on the moon number of Glyph C, in some way which we do not fully understand. Thompson says Glyph B never occurs

without Glyph X. If thus dependent on it, its form does not change with the changes of X.

Thompson discusses the earliest known appearances of the various lunar glyphs, and infers that Glyphs X, B, and A are later additions to those giving moon age and moon number (E/D–C). The evidence for these first appearances is reviewed later, after a summary of the Tikal lunar records as now known.

SUMMARY OF LUNAR DATA AT TIKAL

The tabulated summary below shows which of the lettered glyphs is present on five early-period stelae, and suspected on a sixth. Stelae 12, 23, and 25 have been discussed and illustrated. See Morley, 1937–38, and Andrews, 1951, for others. On Stela 11 of the late period, a question

SUMMARY OF LUNAR SERIES AT TIKAL

		Av.	*Age*	*Dev'n*	*No.*	*Type*	*Glyphs*
St. 3	9. 2.13. 0. 0	7.50	–17.00	–9.50	3C	29	D–C–X–A
St.23	9. 3. 9.13. 3	6.26	– 6.00	.26	2C		D–C
St. 6	9. 4. 0. 0. 0	11.93	–13.00	–1.07	5C		D–C–X
St.25	9. 4. 3. 0. 0	28.83					E–D . . . . . .??
St.12	9. 4.13. 0. 0	26.10	–25.00	1.10	3C		D–C
St.17	9. 6. 3. 9.15	6.19	?	?	4C		D–C–(A ?)
St.11	10. 2. 0. 0. 0	22.86					D–C–X–B–A ?

Note: For identification of Glyph X on Stela 6, see below; for evidence of Glyphs D–E recording zero age on Stela 25, see discussion of that stela. On Stela 17 Glyph D is restored by position and requirement of deviation limits; Glyph A, with coefficient destroved, may be present. Recorded ages given minus sign and decimal places in calculating deviations from average ages, as explained below.

mark indicates some slight doubt as to existence of a lunar series, all glyphs of which are in very bad condition.

The column for moon ages gives the record with a minus sign which we add to indicate the method of calculating the "deviations" from the average ages given first. These latter quantities do not transcribe what was actually recorded, but they are useful in attempts to infer the relationship of the recorded ages to real ages as we use the term in our own culture, counting from the instant of conjunction or, in whole-day terms, from the day of conjunction. Other possibilities are counts from day of last or first visibility ("Old-Moon Day" and "Visible New-Moon Day" and, according to some scholars, " Full-Moon Day"). It is also possible to give an average age which may differ from an actual age counted from the same zero day of the lunation.

The moon-age function of Glyphs D/E was discovered by Teeple by comparing their coefficients with average moon ages. The latter were necessarily arbitrary average ages, that is, calculated from a single but arbitrarily chosen base. Teeple's base was an assumed zero age at 9.17.0.0.0. Roys has published tables for approximate calculations from this base, giving results to one decimal place, and they are used by Andrews in his table (Roys, 1945). Morley used an earlier table by Roys with (as I understand) a base differing from Teeple's by one day. Thus a check would probably show systematic differences between average ages in Andrews' list and those sometimes indirectly implied by Morley.

Andrews calls them "Actual Ages." They are, however, arbitrary and average ages depending

on the selected base and not following variations in the lengths of actual lunations. No better sort of standard of comparison can be had without first settling the correlation problem. Actually we need to learn as much as possible about the lunar system first, as a check on solutions of that problem—the equivalence of Long Count and Christian dates.

The base used here is that of the writer's 1948 and 1951 tables for other sites, an arbitrary assumption of average age 13.26 at 4 Ahau 8 Cumku, end of Baktun 13, the usual base for Initial Series numbers. Calculating tables to the third decimal place are used, more accurate than those of Roys. In effect the results should not differ by more than about .04 day from those calculated from Teeple's base, so far as the bases themselves are concerned.

The "deviations" listed in the table are convenient expressions of by how much the standard average age exceeds the recorded age (+ deviation), or falls short of it (– deviation). Put differently, if there is a plus deviation, the zero point of the current Maya lunation was that much ahead of the zero point in the average lunation with which it is compared; if there is a minus deviation, the Maya zero point was that much behind. We obtain the deviation by giving the recorded age the minus sign and subtracting it from a greater average age; or reducing it by the amount of a lesser average age. With deviations always calculated in this manner with the same average age base we can make precise comparisons of their ranges at different sites and/or periods.

Teeple allowed Maya deviations through a range of nearly 7.00 days. On our scale the recorded age is within his limits if within the range –3.00 to 4.00; if the deviation is greater in either direction, one suspects a mistake in the recorded age. A deviation within "Teeple's limits," especially if well within them, is valuable confirmatory evidence in reconstructing damaged Initial Series.

It may be that these limits should be narrowed for particular sites and periods, and that is the thesis of the writer's 1948 and 1951 papers. Involved here are possible uses of different zero days for the lunation, and possibly mixed recording of observed and calculated ages. The 7-day range appears excessive for a single system; it is based on records at all sites and in all periods, and may cover several systems.

Range of deviations at Tikal: the mistaken Moon Age on Stela 3.

The deviation for Tikal Stela 3 is 6 days beyond the extreme Teeple limits, and accordingly this is one of the few recorded ages which he had to regard as mistakes. Those for Stelae 23, 6, and 12 range from –1.07 to 1.10. This gives us some control in guessing what the Maya mistake was on Stela 3. The recorded coefficient is a clear 17 (2 dots and a thick bar in relief with two incised lines). For a correct age within Teeple's extreme limits, at least two mistaken elements must be postulated. For the negative extreme deviation we would require one instead of two dots, and one instead of two incised lines on the bar in relief, giving age 11. The full set of possibilities for a correct age within the limits is 11, 10, 9, 8, 7, 6, 5, 4. Among these, in bar-dot notation, 7 resembles the recorded 17 more than any of the others. The required mistaken elements are the two incised lines, while all other hypotheses involve mishandling of both dots and bars.

It may be said, then, that a mistake of 17 for 7 as the age is the most probable one, if that was due to careless copying rather than to an original error when the age was first observed or calculated. Since the resulting deviation is well within the 2.17-day range on three other Tikal monuments of the same period, and this in turn is well within the extreme Teeple limits, it seems proper to correct to age 7 ?, with one question mark, meaning that it may be wrong but probably is correct.

FIRST APPEARANCES OF GLYPHS X, B, AND A

A check of firmly dated lunar series before 9.8.0.0.0 in Andrews' list shows presence of Glyphs X, B, and A in that portion of the list; augmenting it with early Tikal and Caracol inscriptions as described above, we have the basis for an up-to-date determination of their known first appearances. Among the 21 early lunar series satisfactorily tied to specific contemporaneous Long Count positions, 17 are well enough preserved, as to the lunar glyphs themselves, for this special purpose.

These 17 dates have been here lettered for reference so that the alphabetic sequence does not violate the chronologic sequence of the 13 dates which are dedicatory tun ends. Dates G, I, J, and L, which are not tun ends, have been inserted as if the unknown dedicatory dates were at the ends of the current tuns. If any of these is lettered too early in the sequence, it happens that only in the case of Date L would this affect conclusions as to first appearances, and probably very little in that case. The dates are tabulated below in columns corresponding to the patterns of lettered lunar–series glyphs used, with a key to the monuments concerned.

Twelve of these may be considered as from sites in a "Peten–British Honduras region" of Thompson's "Central Area" (Balakbal, Caracol, Pusilha, Tikal, Uaxactun). Three are from the Usumacinta region to the west (Altar de Sacrificios, Piedras Negras, and Yaxchilan) and two are from the Motagua drainage to the south (Copan). The Tikal-Uaxactun zone accounts for nearly half of the total.

Glyph B. The table agrees with Thompson's dictum that Glyph B is not expected without Glyph X. He confirmed Morley's 9.8.15.0.0 for its first appearance, on Piedras Negras Stela 25 (with a cautionary "seemingly," doubtless because if X–B are present there, they are out of position). However, Andrews recognizes the full pattern C–X–B–A on Pusilha Stela O at 9.7.0.0.0 (Date Q).

This tends to confirm our entry of Date L in this column, with a question mark, the dedicatory date being probably still earlier, say ca. 9.5.0.0.0. The monument, Stela 15 of Caracol, is also in British Honduras (Satterthwaite, 1951, Pl. 14, Fig. 3). One reads left-right through each row of six blocks, not in the usual double-column order. Glyph C, almost certainly without coefficient, is at D2, followed by what seems safe as Glyph X2 at Block E2, though the block is somewhat worn. The next block, F2, is also weathered, but it is not Glyph A for it surely lacks a coefficient. In the next block, A3, clear remains of the month sign seem to have occupied only the right half of the block. Presumably Glyph A was crowded into the left half but has completely scaled off. By position, then, the sign at F2 should be Glyph B. It cannot be recognized as such by what remains of its form, but we lack sufficient comparative material at this early time to set sure limits on its variability.

As the record stands, Glyph B seemingly first appears in the Peten–British Honduras region, not the Usumacinta, and it may go back as far as 9.5.0.0.0. Its absence on the eleven earlier stelae of our table makes it unnecessary to question the belief that it was a later addition to the series than Glyph X.

Glyphs X and A. In our available sample with firm datings, Glyphs X and A first appear together at Date C on Copan Stela 20. We show Morley's single question mark, 9.1.10.0.0 ? in the table. I think we can safely disregard it since the reconstruction is now

FIRMLY DATED LUNAR SERIES GLYPHS BEFORE 9. 8. 0. 0. 0

E/D–C	E/D–C–A	E/D–C–X	E/D–C–X–A	E/D–C–X–B–A
A 8.16. 0. 0. 0				
B 8.18. 9.17.18				
			C 9. 1.10. 0. 0 ?	
			D 9. 2.13. 0. 0	
			E 9. 3.10. 0. 0	
	F 9. 3.13. 0. 0 ?			
G 9. 3. 9.13. 3				
		H 9. 4. 0. 0. 0 ?		
			I 9. 4.10. 0. 0	
			J 9. 4.11. 8.16	
K 9. 4.13. 0. 0				
				L 9. 4.16.13. 3 ?
	M 9. 5. 0. 0. 0		N 9. 5. 0. 0. 0	
	O 9. 6. 3. 9.15			
	←—— ?		P 9. 6.10. 0. 0	
				Q 9. 7. 0. 0. 0

Key to lettered dates:

- **A** Uaxactun St.18
- **B** Balakbal St. 5 (DD 8.18.10.0.0)
- **C** Copan St.20 (date reconstructed)
- **D** Tikal St. 3
- **E** Uaxactun St.20
- **F** Uaxactun St. 3 (block follows A, before VYr date)
- **G** Tikal St.23 (DD after 9. 3.16. 8. 4)
- **H** Tikal St. 6 (X identified by position—new form ?)
- **I** Altar de Sacrificios St. 12
- **J** Yaxchilan Lintel 47–48
- **K** Tikal St.12
- **L** Caracol St.15 (X, B, identified by position only—new forms ?)
- **M** Caracol St.16
- **N** Piedras Negras St. 5
- **O** Tikal St.17
- **P** Copan St. 9
- **Q** Pusilha St. O

confirmed by a moon age surely over 20 days (Morley, 1920, Fig. 9 and Pl. 9, b). Teeple (1950) gives 25 days, and Andrews gives "over 26," presumably having re-examined the original. Teeple's deviation limits require a recorded age from 22 to 29 days inclusive.

The next appearance of either glyph is at Tikal, 9.2.13.0.0, where they again are recorded together. Thereafter the combination is represented in every katun down to 9.7.0.0.0, but not in the Peten–British Honduras region after 9.3.10.0.0 (Date E on Stela 20 of Uaxactun).

Glyph X without B and A? On Stela 6 of Tikal (Date H) there is a single glyph block between Glyph C and an unusual month coefficient of the vague-year date of the IS (for the latter, see Thompson, 1950, p. 136). By position it should be X, X–B or A, since B without X is unknown in later times. Andrews lists this as a questionable Glyph A, perhaps because Morley saw one of three elements as "Glyph A without coefficient." In order to function, Glyph A must have a coefficient, and the sign itself must be moon-with-dot. There are three elements, the first of which does look like a "half" moon sign with an elongated dot, used as a prefix, but neither main sign nor superfix is a numeral. Neither do these correspond to well-standardized later forms of Glyph B. It seems highly probable that this is a variant of Glyph X1 which could occur with the recorded 5C, consists of three or four elements, and is already known to show considerable variation (Thompson, 1950, p. 241). There is nothing to suggest the combination X–B. In any case we can safely reject the notion of a deficient Glyph A, since moon-sign-with-dot cccurs in Glyph E and also outside the lunar series (see discussions of Tikal Stelae 25 and 22).

While this probable appearance of Glyph X without A is unique in our early sample it is in line with its dependence on Glyph C coefficients, and shows positively its independence of Glyph A. It should be remembered that Glyph A was already known at the site.

Presence or Absence of Glyph A. Glyph A surely involved calculation rather than observation, and so is of special interest. It is present in twelve entries of the table, absent in five (unless a shift of Date O should change these counts to eleven and six). Accepting Date C, the first appearance is at Copan and 9.1.10.0.0 (Stela 20); rejecting that, the first appearance is at Tikal and 9.2.13.0.0 (Date D on Stela 3). Once Glyph A appears in the sample its chronological distribution is fairly continuous.

After appearing at a given site it did not necessarily begin to appear regularly there. At Tikal Glyph A was definitely lacking in the lunar series for Dates G, H and K, and this may have been true for Date O also, though these all follow Date D. Because our sample is so small we have no means of knowing whether a similar situation obtained at Uaxactun or other neighboring sites.

So far as we can tell, use of Glyph A in carved inscriptions may have begun at Copan, but if so, it spread rapidly. We should remember that painted records, now lost, probably originated in pre-Classic times. First appearances in carved stone are not necessarily indicators of diffusion. In the Tikal-Uaxactun zone, after Glyphs X and A were first permanently committed to stone, there may have been a period of at least two katuns during which there were second thoughts about the usefulness of Glyph A; we do not find it again there until after Gap 1 at Tikal.

Such an interpretation would account for observed facts, and would be in line with Thompson's implication that at the beginning of Early Classic only moon ages and moon numbers were recorded. To sustain that perfectly reasonable interpretation one could wish for a longer series of reliable lunar

records showing the E/D–C pattern before 9.1.10.0.0.

HYPOTHESIS OF AN EARLY TIKAL SHIFT TO "UNIFORMITY" MOON NUMBERING

Five of the Tikal lunar series have legible moon numbers which we list below. To the left the corresponding Initial Series are given in decimal notation as well as in "tun-arithmetic" notation. The IS dates are in chronological order, with decimally expressed intervals; the intervals may be of use in analyses not attempted here, It should be noted that our previously proposed correction of the recorded age on Stela 3 could not affect the moon number. Neither would restoration of the missingage on Stela 17 affect the number, unless it also was a mistaken age, outside "Teeple's limits." Thus, all five moon numbers seem reliable. They are compared with the starred "Uniformity" moon numbers at right, which require an explanatory digression.

TIKAL MOON NUMBERS AND AVERAGE "UNIFORMITY" NUMBERS AND AGES

				Unif.	*Average*	
			Rec.	*MN*	*MA*	
St. 3	9. 2.13. 0. 0	1,315,080	3C	2C*/	7.50	
		6,023				
St.23	9. 3. 9.13. 3	1,321,103	2C*	2C*/	6.26	(later DD)
		3,697				
St. 6	9. 4. 0. 0. 0	1,324,800	5C	1C*/	11.93	
		4,680				
St.12	9. 4.13. 0. 0	1,329,480	3C*	3C*/	26.10	
		10,995				
St.17	9. 6. 3. 9.15	1,340,475	4C*	4C*/	6.19	(later DD)

Our Tikal moon numbers (Glyph C coefficients) are all for dates in the Early Tikal period, hence in Teeple's "Period of Independence " in respect to moon numbering. During this period the method or methods of counting complete lunations has remained unknown. It ends when a "Period of Uniformity" begins at 9.12.15.0.0, at Piedras Negras. During this second period, supposed to have lasted at least three katuns, Teeple showed that the moons were numbered and counted in continuous groups of six in the order 1-2-3-4-5-6-1-2-3, etc.

He called these groups "natural lunar half-years," assuming that pairs of them formed "natural lunar years"; but it was noted that "in a continuous count of lunar years there is no natural starting point—no new moon which is the obvious end of one lunar year and beginning of another. The selection of this zero new moon is purely arbitrary, and the characteristic of the Period of Uniformity from 9.12.15.0.0 on was the absolute agreement among all cities in selecting the same new moon to start each lunar half-year" (1950, p. 54).

It is important to remember that this lunar-year count is not a *lunar-solar* year count, in which 6-moon groups would occasionally be paired with 7-moon groups. The existence of continuous 6-moon counting after 9.12.15.0.0 was established by comparing recorded moon numbers with those found by calculating with the average lunation, arranging the average lunations in continuous 6-lunation groups. In our calculations of average ages we use age 13.26 days at the Initial Series base as our point of departure. To obtain "Uniformity" moon numbers as well, i. e., Glyph C coefficients, we

can represent this base as 1C*/13.26, the start being from within Moon No. 1. The asterisk indicates that the moon number is according to the Uniformity system. We expect such "Uniformity" numbers to agree with the record during the Period of Uniformity. We can calculate one for any date, but on the basis of the data available to Teeple we expect it to agree with pre-Uniformity records only occasionally, by chance.

Teeple's evidence led him to suppose that some sites may have used the "lunar year" type of count, during pre-Uniformity times, but not from the same arbitrary base as during the Uniformity period. The evidence for this would be a sufficient number of recorded Glyph C values differing from the Uniformity ones by a constant number of moons. But he cited pre-Uniformity evidence at Copan which does not fit that postulate for that site.

Turning to our Tikal moon numbers, we have starred three out of five because they agree with the Uniformity system, though our dates are long before the general adoption of that system. On Stela 3 the Glyph C number is 1 ahead of Uniformity calculation (or 5 behind), while on Stela 6 the record is 4 ahead of Uniformity (or 2 behind). We must consider whether all five numbers belong in one system or not; but if only those of Stelae 3 and 6 belong together, we have a non-lunar year count of some sort, as of 9.4.0.0.0. This was expectable, and the conclusion seems firm.

Are we to assume that all five records belong in this system? Without knowing the system of Stelae 3 and 6, presumably one cannot calculate precise statistical odds against finding so many chance agreements with the backward projection of a lunar-year system known to have existed later in the same region. In addition to the 3:2 ratio of agreement, two of the three agreeing records are at the late end of the series, as they should be if there was a shift from the unknown system of Stelae 3 and 6, after the 9.4.0.0.0 date of the latter. While the IS date of Stelae 23 and the other agreeing moon number is well before 9.4.0.0.0, its *dedicatory* date may have been after it, and even after the 9.4.3.0.0 of Stela 25. So far as we know, all three agreeing Glyph C numbers may have been carved after the carving of the two disagreeing ones. In that case the IS of Stela 23 could correspond to that of Stela 3 at Piedras Negras. The latter gives a Uniformity moon number carved during the Uniformity period, but for an earlier date preceding that of the earliest *contemporaneous* Uniformity record.

It seems fair to set up as an hypothesis the proposition that there was a shift to the "Uniformity" system at Tikal shortly after 9.4.0.0.0, possibly on the 9.4.3.0.0 of Stela 25, when a tun end happened to fall at moon age zero. That would account for selection of the odd-tun end, and for the earliest fairly long Tikal inscription. It is a great pity that the supposed zero age on that stela is somewhat doubtful, and that the existence of a lunar series at all must be predicated on that.

If we accept the hypothesis provisionally, it is logical to guess that the system continued in use at Tikal and perhaps at Uaxactun and neighboring sites until, at 9.12.15.0.0 and shortly thereafter, numerous other sites fell in line, and thus created "Uniformity." This speculation cannot be checked because we lack any lunar records between 9.4.0.0.0 and 9.12.15.0.0 at either Tikal or Uaxactun, other than those at Tikal which we have been considering. The hypothesis is certainly not to be accepted merely because it cannot be disproved, but since it deals with the problem of the historical development of Maya astronomy it is not without potential importance. It is, perhaps, one of the most interesting results of the 1957 discovery of Stelae 23 and 25, and the fuller reading of the inscription of Stela 12.

SUMMARY

New descriptive data have been supplied for seven carved stelae and the carved altars of two of them, according to a set plan modeled on that of Morley, but with certain innovations. In some cases we add to what was known before, and in others are dealing with monuments first discovered during the 1956 and 1957 seasons. A beginning is made at more adequate illustration of two of the latter (Stelae 23 and 25), and the incomplete photographic records of certain others are also utilized in providing chronological decipherments of five of the stelae. Period-indicating factors are brought to bear on carved monuments which cannot be dated epigraphically.

When an addition is made to the corpus of Maya art or inscriptions there is no way of measuring its ultimate usefulness and importance, but one can be sure that this will be enhanced by knowing its dedicatory or "contemporaneous" date, if that is possible. The new data on this have been integrated with the old in a special section. Charts on pp. 120–121 distinguish between stelae providing firm epigraphic control and those for which more vague criteria must be relied on. When available, the "spreads" indicated by the Proskouriakoff system of objective analysis of stylistic traits are substituted for what might be termed Morley guess dates, which are precise but not certain. This does not mean that some of those excluded from the chart may not be correct. They have been listed separately and discussed in some detail, and compared with the results of the new style-dating method and other new information.

In line with our need to gain chronological control over stelae which cannot be dated epigraphically we have analysed the available dimensions of all Tikal carved stelae. They are tabulated on p. 117. The conclusion is reached that certain dimensional and proportional limits characterize an "Early Tikal" period. Presumably they should be valid for plain stelae as well. This approach, perhaps combined with shape analysis, may be of value in trying to decide whether the presently existing gaps in the sequence of carved monuments are due to cessations of monument erection, or merely to shifts to painted and now "plain" stelae, as Morley postulated.

Stelae (and altars as well), so far as they are here described in detail, have been classified on the basis of the number of carved surfaces, and their positions on the monument. To a limited extent this classification has also been utilized in trying to date monuments where epigraphical controls are lacking or dubious. The system is a simplification of the second of two schemes of Morley for stelae only, and the reasons for adopting it are given in the appendix. Usually, one of Morley's classes may be considered as a type of one of our more inclusive classes, and the two are correlated in a tabulation on p. 139, and we have given both in describing individual stelae. Thus, in adopting a modified classificatory scheme we do not lose contact with his published time-space distributions for his classes.

Our new finds leave the breaks in the sequence substantially as they were when Morley reviewed the situation. For reference we have numbered them. "Gap 1" is from 9.4.13.0.0 (Stela 12) to about 9.7.0.0.0 (Stela 17). This is considered to be a gap within the "Early Tikal period" during which known but now illegible carved monuments were probably erected, including the famous Stela 10. For this reason it would be unsafe to equate this Gap 1 with the "Hiatus" noted by Proskouriakoff

for the area as a whole (9.5.0.0.0 to 9.8.0.0.0). Our Gap 2, from about 9.7.0.0.0 to 9.14.0.0.0 (Stela 16/Altar 5) looks real, and sets off the "Late Tikal period." Gap 3 is within this period (from 9.18.0.0.0 of Stela 19/Altar 6 to 10.2.0.0.0 of Stela 11). It corresponds rather well with Proskouriakoff's schematic limits for her Decadent Phase.

Our local "Early" and "Late" periods are likely to remain useful because the gap between them as now known is so long, though of course new finds may shorten it somewhat. For instance, Stela 24 may belong near the late end of Gap 2. Allowing for some elasticity in our two local periods, stylistic controls leave no doubt that all of the known carved wooden lintels belong in the late period, and this falls entirely in what has come to be termed the "Late Classic" for the area in general.

However there is reason to think that "Late Classic" stylistic features had begun to appear toward the end of our local "Early Tikal" period; at least, this results if Stela 10 belongs as early as 9.6.0.0.0, the early extreme indicated by stylistic analysis. We have stated a case for this, which depends on our new and firm dating of Stela 12 at 9.4.13.0.0, and of high relief carving even earlier, at 9.4.3.0.0 on the new Stela 25.

The new findings involve a fair number of epigraphic details which should be of interest to epigraphists, who may be expected to hunt them out in the detailed discussions of the inscriptions. These include certain new variants among chronological signs, rare uses of the "moon-with-enclosed-dot" sign, additional uses of "isolated" katun signs, a katun "anniversary," and so on. It should be noted, perhaps, that the new Stela 23 provides the first non-tun-end IS at Tikal, and that the new Stela 25 introduces the rare "odd" tun-end IS here. Also to be noted is the fact that 13th-tun-end marking is now firmly established with two Early Tikal period examples (Stelae 3 and 12). Because of these we have argued for extra caution in considering Morley's question-marked dedicatory date readings, particularly two at the 10th tun.

We now have a still small but respectable corpus of lunar series in the important Early period at Tikal. The lunar data have been gathered together in a special section, with a tabulation of lunar data on p. 127. Comparisons are made with other sites on this time level, with revised conclusions as to known first appearances of Glyphs X, B, and A, based on a tabulation on p. 130.

Three out of five Tikal moon numbers unexpectedly agree with the "Uniformity" system of later times, as shown in the tabulation on p. 132. This has led us to set up a potentially important hypothesis. This is that the Uniformity system may have originated at Tikal, with a shift from some other system shortly after 9.4.0.0.0–perhaps on Stela 25 at 9.4.3.0.0 when the tun happened to be at zero age.

APPENDIX

DESIGN–ARRANGEMENT CLASSIFICATION OF CARVED STELAE AND ALTARS

In describing Tikal carved stelae we give Morley's "Classification on the basis of the arrangement of the design." However, his Class Number appears as a mere type, after a number and letters reflecting an initially simpler approach. For example, we have:

Tikal Stela 12: Class 4: FLRB / Morley Class 4

It is mere coincidence that our class number is the same as Morley's in this instance. Our system is expanded to include common forms of altars, and is explained in this appendix. First it is desirable to explain Morley's system and give reasons for not being content with it as it stands. It may be noted here that we do not propose to sacrifice the results of his analyses in this field, including very valuable space-time distributions. We do reject the chronological conclusions supposedly reflected in his numerations.

MORLEY'S "CLASSES" OF STELAE

An original system of six classes for Copan was abandoned in favor of a twelve-class system including "Peten" stelae. For his class definitions and discussion see Morley, 1937–38, I, p. 152; and IV, pp. 261–267. The latter passage summarizes distributions of his classes in Tables 108 (Peten) and 110 (Copan); the index (Vol. 4) leads one to individual site tables, and thus to specific descriptions of stelae of a given class.

The Copan system was based on the following factors.

(a) The number and position of carved surfaces
(b) The distribution of a human figure and glyphs among them
(c) The supposed date of earliest appearance of a class defined under (a) and (b)

To anticipate, we use class numbers based on (a) only. The basic Copan approach was followed by Morley in the new Copan-Peten system with certain refinements and certain permissable departures from strict interpretations of class definitions which, I think, were meant to be understood.

The vertical surfaces of a stela are now *front, back,* and *sides.* When we read "human figure" (in the singular) this may be a principal human figure among two or more on the surface. Perhaps "figure" can be stretched to include "equally important human figures." When "human figures" are specified for "sides," a check shows that this means one figure for each side. For some classes a surface may be "with or without glyphs." In many cases, such glyphs being present, they are apparently not part of a main chronological text on other surfaces, but a preliminary check shows that this is not universally true.

Neither the Morley classification nor our modification of it attempts to deal with the positions of different sorts of texts; granting the above interpretations, the new "Peten" class definitions seem useful improvements on the old Copan ones, as well as necessary additions. Usually there will be no difficulty in determining front, back, and sides of a carved stela (or carved altar). This matter is given special attention below.

No classification can be perfect. Faults in this one which seem to justify recasting it into another mold are as follows.

Lack of formal provision for variants or additional classes. Two rather glaring examples come to mind. Class 5 is defined as having back and sides plain, with glyphs on the front. A check shows that the meaning is "glyphs only"—an "all glyphic" stela. For Copan, in Table 110 this is specified, but Class 5 is made to cover stelae with carved backs as well as fronts, and others with all four surfaces carved.

The antithesis of an all-glyphic stela would be one without any glyphs at all. Morley had to deal with four sure or probable examples at four sites (1937–38, II, p. 272, and see index). Though numbered classes were set up for unique arrangements known by single examples, there is no provision for these non-glyphic stelae. In describing them he assigned them to Class 7 (Xmakabatun Stela 4) or to that class with a note "or rather a variant" (Xultun Stela 12, Seibal Stela 2, Itsimte Stela 1). Class 7 was the commonest of all (if we count these), and calls for glyphs.

Another interesting type may not have been known to Morley, but needs now to be provided for. Stela 18, Caracol, lacks a human figure, but seems to have a non-human one (serpent). There are two glyphs, but no date.

Dubious chronological implications of the Morley class numbers. The class numbers in the Copan system gave the supposed chronological order in which each class first appeared, and this is supposed to hold for the numeration of the new system of twelve classes (see Morley, 1938–38, IV, bottom of p. 261). Actually, doubt as to the Class 2–3 sequence is expressed. First-appearance dates are noted for Classes 4, 5, and 7, but they are at different sites and within a period of less than 2 katuns. Clearly new discoveries and/or dedicatory date readings may change this part of the "earliest appearance" sequence at any time. To find such dates for Classes 6, 8, 9, 10, 11, and 12 we must dig them out of individual stela descriptions. As a sample we compare Class 6 with Class 12. Class 6 was represented by Yaxha Stela 7 only, dated as "Middle Period?" By rule, Class 12 should have no representative earlier than this. Tikal Stelae 1 and 2 provide two of three examples of Class 12. Morley dates both as "very early in Baktun 9," and Proskouriakoff's style dating confirms. Adding to the confusion, a variant of the Morley Class 6 is now firmly dated at 9.4.3.0.0 (Tikal Stela 25).

Clumsiness of Morley class numbers as arbitrary labels. In view of the above we must conclude that the first-appearance numeration scheme breaks down in actual practice. We must regard the Morley class numbers as arbitrary tags. Their number would increase if we introduced formal variant numbers, such as 5a, 5b, 5c, or new numbers, and thus made desirable new distinctions. Yet it is already difficult to remember what a given class number connotes. This is not merely because the numbers are really arbitrary and so many, but also because the classes involve not only the positions of carving on the monument, but also the positions of specific subject matter.

It seems desirable to make a second new start with class numbering, this time restricting it to

a non-chronologic but still logical function which tells us less, but which will have survival value.

CLASSIFICATION OF CARVED STELAE AND ALTARS

BY THE NUMBER AND POSITIONS OF CARVED SURFACES

In this revised system we start with the different surfaces which are clearly differentiated by the shape of the monument, whether stela or altar. The class number gives the number of such surfaces that were selected for carving. In one case we add "x" to call attention to an unusual subclass.

Sub-classes are defined by the positions of the surfaces chosen for carving, still without reference to subject matter. These are indicated, after a colon, by symbols. Their meanings can be easily memorized because they are abbreviations of simple position-indicating terms, usually initial letters. In tabulations the description of the sub-class is followed by the sign (/) to indicate that further distinctions of types involve subject matter. Thus we can place a Morley "Class" number here, as an arbitrary substitute for further typological description of a stela—provided it agrees with what has been already indicated.

The position-indicating letters and other abbreviations are tabulated below, for reference. The list is probably sufficient to cover all stelae and common forms of altars, but it could be added to if necessary.

In the list, "periphery" corresponds to Maler's "cylindrical side." It does not preclude quartering or other division of the originally continuous side surface by the sculptor.

TERMS AND ABBREVIATIONS FOR SURFACES

OF STELAE AND COMMON FORMS OF ALTARS

T	Top	These are the five surfaces available for carving, as presented by stelae and altars which are sufficiently rectangular in horizontal section to mark off four vertical surfaces. Left and right are of an observer facing the front of the monument.
F	Front	
L	Left side	
R	Right side	
B	Back	
T	Top	Of stelae (very rare) and altars (very common) which are round or oval in horizontal section, so that in respect to shape alone there is a single continuous vertical surface.
P	Periphery	
Lg	Leg	A supporting element of a "table altar." May be repeated to indicate number of carved legs, or preceded by the number of legs.
U	Underside	The bottom surface of a stela or altar. Allows for the possibility of carving on a surface intended to be invisible (Altar 1, Tikal, is a questionable case).

With these simple abbreviations in mind the meaning of our previous classification of Tikal Stela 12 is clear, down to but not including the subject-matter elements of Morley's Class 4. We can use our letters to advantage in showing these also:

Tikal Stela 12: Class 4: FLRB / *Morley Class 4*
F Figure
L Glyphs
R Glyphs
B Glyphs

There are four carved surfaces, the expected front, left and right sides, and the back; this type shows a human figure on the front, glyphs on sides and back.

It seems worth while to tabulate such outline descriptions of all of Morley's classes in this manner, and this is done below for reference. They account for the great majority of stelae, and significant time-space correlations are certainly involved.

MORLEY'S STELA CLASSES AS TYPES OF CARVED SURFACE CLASSES *

Class 1 : F / *Morley Class 5*
F Glyphs (only)

" / *Morley Class 7*
F Figure, Glyphs

Class 2 : FB / *Morley Class 1*
F Figure (Glyphs)
B Glyphs

" / *Morley Class 5 (Copan)*
F Glyphs
B Glyphs

" / *Morley Class 8*
F Figure (Glyphs)
B Figure (Glyphs)

Class 3 : FLR / *Morley Class 3*
F Figure (Glyphs)
L Glyphs
R Glyphs

" / *Morley Class 11*
F Figure
L Figure, Glyphs
R Figure, Glyphs

Class 4x: TFLR / *Morley Class 9*
T Figure, Glyphs
F Figure, Glyphs
L Glyphs
R Figure

Class 4 : FLRB / *Morley Class 2*
F Figure (Glyphs)
L Glyphs
R Glyphs
B Figure (Glyphs)

" / *Morley Class 4*
F Figure, (Glyphs)
L Glyphs
R Glyphs
B Glyphs

" / *Morley Class 5 (Copan)*
F Glyphs
L Glyphs
R Glyphs
B Glyphs

" / *Morley Class 6*
F Figure
L Figure
R Figure
B Glyphs

" / *Morley Class 10*
F Figure, Glyphs
L Figure
R Glyphs
B Unknown

" / *Morley Class 12*
FLR Single Figure
B Glyphs

* Note: All "figures" are human figures; "glyphs" when in parentheses may or may not be present.

IDENTIFICATION OF THE FRONT OF A CARVED STELA

In the revised carved-surface classification the sub-class remains unknown unless one can determine which face is the front one. Where we have only one vertical carved surface, obviously that is the front (Class 1: F); or if we have only one plain vertical surface, obviously the front is the opposite one (Class 3: FLR, and Class 4x: TFLR).

There are enough examples of the first two of these three classes to infer rules involving subject matter and associations with altars and/or structures. If there is a principal human figure (as is usual), it is on the front; this faces the altar, if present; and it faces away from the associated structure, if the stela is placed before one. If the horizontal section is not square, which is very rare, the front and back faces are the wider ones. With these controls there will seldom be any doubt when dealing with other classes, unless one is dealing with extremely fragmentary material. Usually, with Class 2: FB, or Class 4: FLRB, a principal human figure (or figures) for the stela as a whole can be identified and may be taken as the front; and/or orientation with respect to structure or altar (or both) will give the cue.

A check of all examples of Morley's classes which show human figures on the sides, justifies a further rule, useful in confirming our reconstruction and reclassification of Tikal Stela 14. These side figures seem always to face toward a front corner of the stone. The examples are our new Tikal Stelae 23 and 25, Yaxha Stela 7 (Morley Class 6), Uaxactun Stela 20 (variant of Morley Class 4 –*sic*), Piedras Negras Stela 6 (Morley Class 10) and Piedras Negras Stelae 11 and 16 (Morley Class 11). Since subordinate figures are not infrequently shown at left and right of front surfaces, facing a centered principal figure, these side figures are presumably also subordinate ones, even if this is not shown by reduced scale. There is a principal figure on the front in all of the cited Morley classes.

IDENTIFICATION OF THE FRONT OF A CARVED ALTAR

When a sculptured altar is carved on the top, the front may be taken as the side turned away from an associated stela. An observer, standing before it, will normally then see the design of either the altar, or the stela behind it, properly oriented. Lacking such positional control, the front is the edge before which an observer of the top design takes his stand. This simple principle will permit restoring the disturbed Tikal Altar 6 to its proper place before Stela 19.

At Caracol, oval or irregular oval altarshave the longer diameters running from side to side. This principle might help with a badly damaged altar.

No thorough check has been made to see how many altars cannot be given sub-class designation in the same system as the stelae. Some bizarre forms called altars will surely require special classification, if any.

EXCEPTIONAL ORIENTATIONS

There are a very few cases where the front of a stela–as determined by subject matter or by plain surfaces–is not turned away from an associated structure. And there is a case or two where the front of an altar–as determined by its design–is not fully turned away from an associated stela.

In such cases the design should take precedence as the basis for defining front, sides and back. The unusual orientations with respect to an associated monument and/or structure are then easily described, and we are on notice that the observed relationships may not be those originally intended.

Tikal Stela 14 is an example where there is good reason for suspecting that resetting may account for finding the back turned away from the associated structure (Tikal Report No. 3, p. 79). The same might be involved in abnormal positioning of altars. A striking example of abnormal orientation of an altar occurs at Caracol (Satterthwaite, 1954, p. 45, Fig. 34). Caracol Altar 19 is carved on top, with plain periphery or "sides." As one views the design on top properly, the back, not the front of the periphery is within 9 degrees of being turned away from the associated carved Stela 11. An observer of the stela may look down on the altar-top, but its design is seen almost upside down. Altar 4 of Tikal, with carved periphery as well as top, is another example. Defining the front portion of the cylindrical periphery in the same way, it is to the left of an observer of the front face of the associated plain stela, and of Structure 32 behind the latter. While directly before stela and altar, he sees the altar-top design on its side. In this case, where there has been some modern digging, the possibility of modern as well as ancient movement needs to be considered.

It may be that originally there were no exceptions to the rule that the fronts of carved stelae were turned away from associated structures, if any, and toward associated altars, if any; and that carved altars were placed so that both the front of the stela and carving on the top of the altar could be properly viewed from a position before both.

REFERENCES

Andrews, E. W.

1951 The Maya Supplementary Series. In "The Civilizations of Ancient America" edited by Sol Tax. *Selected Papers of the XXIXth International Congress of Americanists*, pp. 123–141. Chicago.

Berlin, H.

1951 El Templo de las Inscripciones VI de Tikal. *Antropologia e Historia de Guatemala*, Vol. 3, No. 1, pp. 33–54. Guatemala.

Coe, W. R., and V. L. Broman

1958 Excavations at the Stela 23 Group. No. 2 in "Tikal Reports Nos. 1–4." *Museum Monographs, The University Museum*. Philadelphia.

Maler, T.

1911 Explorations in the Department of Peten, Guatemala–Tikal. *Memoirs, Peabody Museum, Harvard University*, Vol. 5, No. 1. Cambridge.

Maudslay, A. P.

1889–1902 Archaeology. *Biologia Centrali-Americana*, Vol. 3 of Plates. London.

Morley, S. G.

1920 The Inscriptions of Copan. *Carnegie Institution of Washington, Publication* 219. Washington.

1937–1938 The Inscriptions of Peten. *Carnegie Institution of Washington, Publication* 437. 5 vols. Washington.

Proskouriakoff, T.

1950 A Study of Classic Maya Sculpture. *Carnegie Institution of Washington, Publication* 593. Washington.

Roys, L.

1945 Moon Age Tables. *Carnegie Institution of Washington, Division of Historical Research, Notes on Middle American Archaeology and Ethnology*, No. 50. Cambridge.

Ruppert, K., and J. H. Denison

1943 Archaeological Reconnaissance in Campeche, Quintana Roo and Peten. *Carnegie Institution of Washington, Publication* 543. Washington.

Satterthwaite, L.

1947 Concepts and Structures of Maya Calendrical Arithmetics. *Joint Publications, The Museum of the University of Pennsylvania and the Philadelphia Anthropological Society*, No. 3. Philadelphia.

1948 Further Implications of Thompson's Readings of Maya Inscriptions at Copan. *Actes du XXVIII Congres International des Americanistes*, pp. 467–493. Paris.

1951a Moon Ages of the Maya Inscriptions: the Problem of Their Seven-day Range of Deviation from Calculated Mean Ages. In "The Civilizations of Ancient America" edited by Sol Tax. *Selected Papers of the XXIXth International Congress of Americanists*, pp. 142–154. Chicago.

1951b Reconnaissance in British Honduras. *University Museum Bulletin*, Vol. 16, No. 1. Philadelphia.

1954 Sculptured Monuments from Caracol, British Honduras. *University Museum Bulletin*, Vol. 18, Nos. 1–2. Philadelphia.

1956 Maya Dates on Stelae in Tikal "Enclosures." *University Museum Bulletin*, Vol. 20, No. 4. Philadelphia.

1958 The Problem of Abnormal Stela Placements at Tikal and Elsewhere. No. 3 in "Tikal Reports Nos. 1–4." *Museum Monographs, The University Museum*. Philadelphis.

Shook, E. M.

1951 Investigaciones Arqueologicas en las Ruinas de Tikal, Departamento de El Peten, Guatemala. *Antropologia e Historia de Guatemala*, Vol. 3, No. 1, pp. 9–32. Guatemala.

1957 The Tikal Project. *University Museum Bulletin*, Vol. 21, No. 3, Philadelphia.

Teeple, J. E.

1930 Maya Astronomy. *Carnegie Institution of Washington, Publication* 403, Contribution 2. Washington.

Thompson, J. E. S.

1950 Maya Hieroglyphic Writing: Introduction. *Carnegie Institution of Washington, Publication* 589. Washington.

Fig. 17. Stela 10, selected glyphs on back.

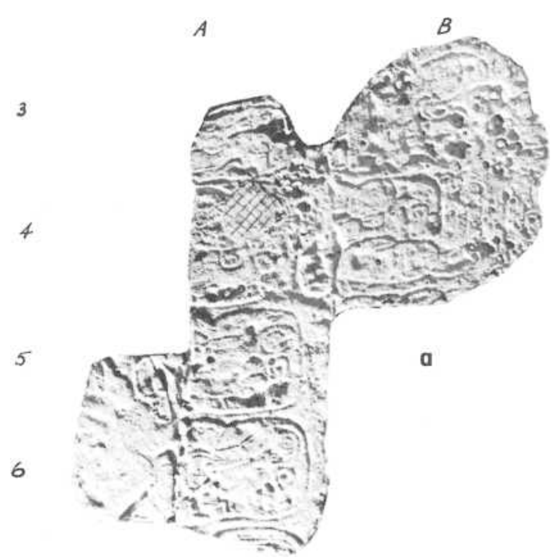


Fig. 18. Stela 12, selected glyphs on right side and back; note that Block B3 appears in both a and b (a is a cast from rubber mold of side and back, laid flat).

Fig. 19. Stela 14, left side, as seen in 1957; note foot of human figure.

Fig. 20

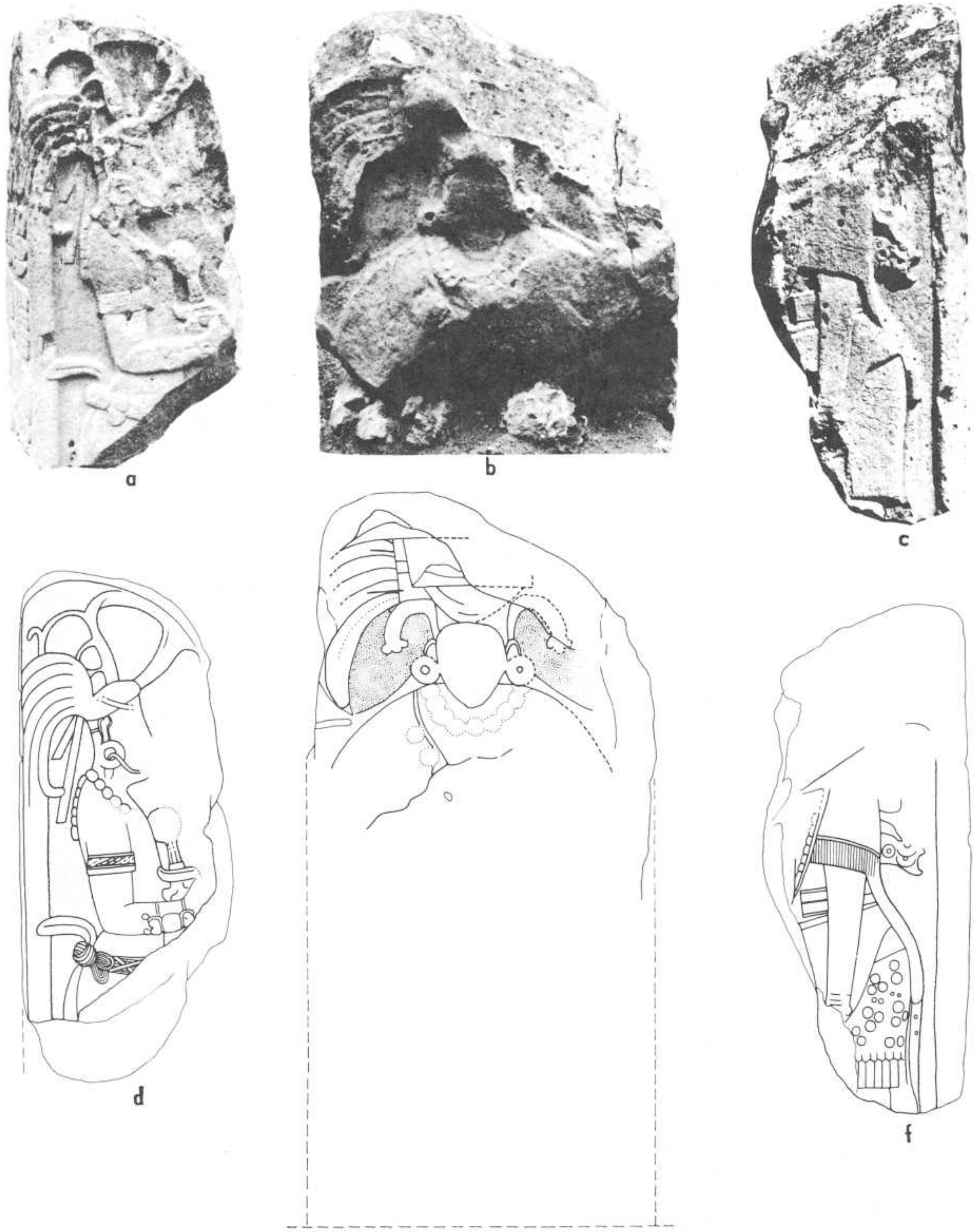


Fig. 20. Stela 23: a, b, c respectively are photographs of left side, front and right side; d, e, f are drawings of same from various photographs, same scale as in Fig. 21. The photograph b, used for the drawing e, is vertically foreshortened.

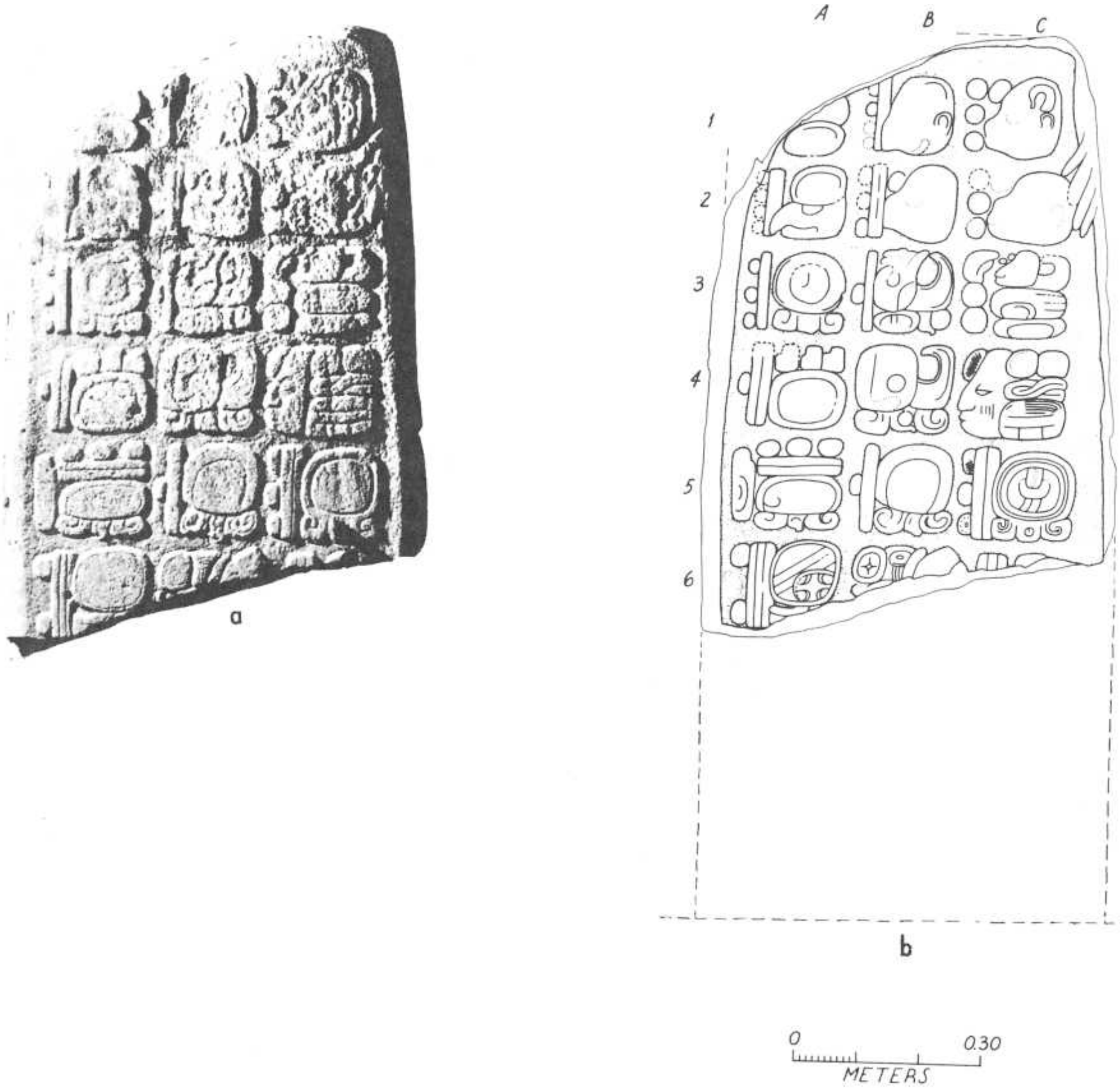


Fig. 21. Stela 23: a, inscription on back; b, drawing from various photographs

Fig. 22

Fig. 23

a

c

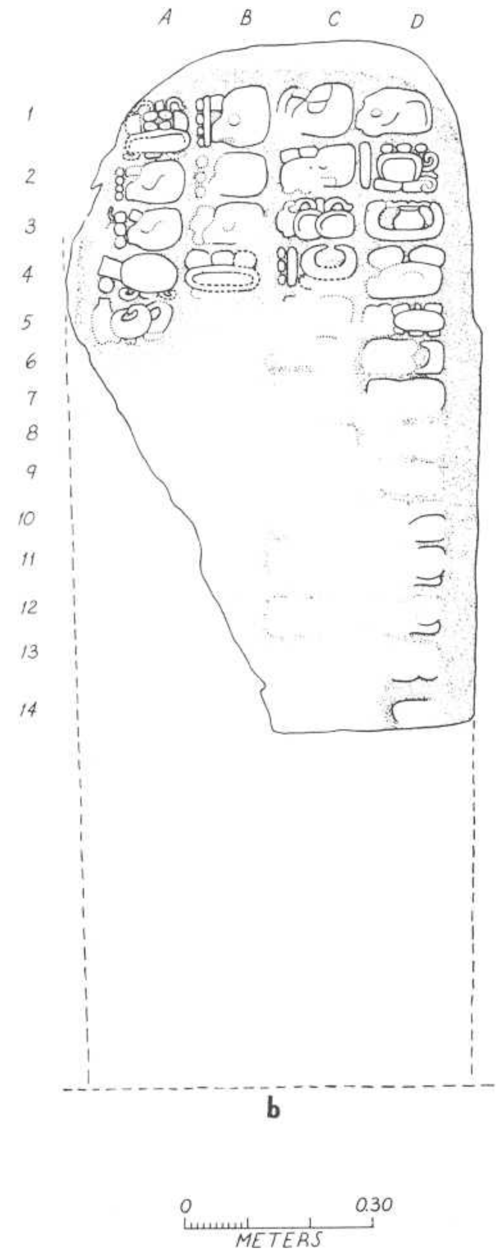
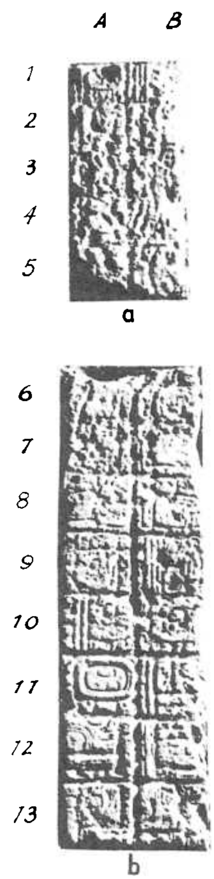


Fig. 23. Stela 25: a, b, inscription on back; b is drawing from various photographs with broken-line indication of estimated minimum height above floor; c, left side and front, showing equal scale of human figures.

Fig. 22. (on opposite page) Stela 25: a, b, c, respectively are photographs of left side, front and right side; d, e, f are drawings of same from various photographs; g, h are drawings of glyphs on sides at double scale (others at same scale as Fig. 23).



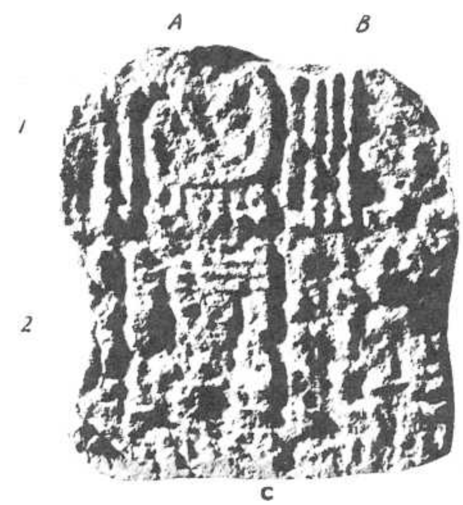


Fig. 24. Stela 19, inscription on front; a, b, upper and lower panels, somewhat foreshortened; c, cast of first four glyphs at double scale.

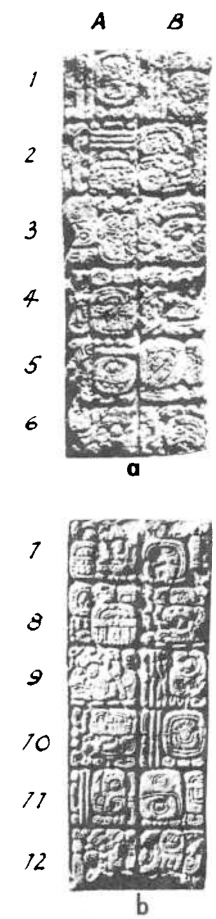


Fig. 25. Stela 22, inscription on front; a, b, upper and lower panels.

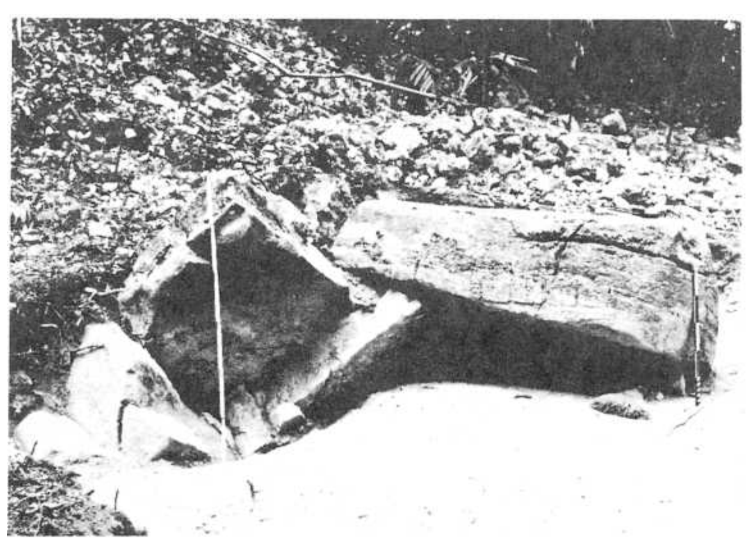


Fig. 26. Stela 24, butt and large fragments as found, after clearing to plaza floor and collecting small fragments; note eroded glyphs on left side of top fragment (formerly "plain" Stela D8).

MUSEUM MONOGRAPHS

See: Books: Tikal Reports - numbers 5-10, pp 1 - 240

TIKAL REPORTS — NUMBERS 5-10

By

Richard E. W. Adams Vivian L. Broman William R. Coe
William A. Haviland Ruben E. Reina Linton Satterthwaite
Edwin M. Shook Aubrey S. Trik

PUBLISHED BY
THE UNIVERSITY MUSEUM
UNIVERSITY OF PENNSYLVANIA
PHILADELPHIA
1961

CONTENTS

Page

REPORT NO. 5 1

TIKAL: NUMERATION, TERMINOLOGY, AND OBJECTIVES
Edwin M. Shook and William R. Coe

REPORT NO. 6 15

THE CARVED WOODEN LINTELS OF TIKAL
William R. Coe, Edwin M. Shook, Linton Satterthwaite

REPORT NO. 7 113

TEMPLE I (STR. 5D-1): POST-CONSTRUCTIONAL ACTIVITIES
Richard E. W. Adams and Aubrey S. Trik

REPORT NO. 8 149

MISCELLANEOUS INVESTIGATIONS: EXCAVATION NEAR FRAGMENT 1 OF STELA 17, WITH OBSERVATIONS ON STELA P34 AND MISCELLANEOUS STONE 25; EXCAVATION OF STELA 25, FRAGMENT 1; EXCAVATION OF STELA 27; EXCAVATION OF STELA 28, FRAGMENT 1
Linton Satterthwaite, Vivian L. Broman, William A. Haviland

REPORT NO. 9 171

THE MOUNDS AND MONUMENTS OF XUTILHA, PETEN, GUATEMALA
Linton Satterthwaite

REPORT NO. 10 213

THE ABANDONMENT OF PRIMICIAS BY ITZA OF SAN JOSE, GUATEMALA, AND SOCOTZ, BRITISH HONDURAS
Ruben E. Reina

TIKAL REPORT NO. 5

TIKAL: NUMERATION, TERMINOLOGY, AND OBJECTIVES

Edwin M. Shook and William R. Coe

CONTENTS

Page

INTRODUCTION 5

A. THE MAP AND 500-METER SQUARES 6

B. DESIGNATIONS OF CULTURE FEATURES WITHIN THE SQUARE SYSTEM . . . 6

C. DESIGNATIONS OF CULTURE FEATURES OUTSIDE THE SQUARE SYSTEM . . 7

D. CORRELATIVE DEVICES 12

REFERENCES 13

INTRODUCTION

There is, we feel, a decided need to put on record the fundamentals of the system, procedural and terminological, which has been developed and adopted since the inception of our work at Tikal. A statement such as this is not intended in any sense as a manual but but is rather to indicate to the reader the context in which data are gathered and handled, and the manner, and objectives, in which they are published.

From the beginning there has been total agreement as to the obligation to publish promptly in technical fashion both the results of excavations and other studies. Despite intentions, as could be anticipated, we find ourselves gradually falling behind. This is inevitable, particularly as the field season continues to grow, as the Project staff increases, and as the scope of excavations broadens.

It is apparent that the realization of prompt publication imposes certain problems that would not obtain were one to rely on purely factual annual reports with synthesis and interpretation relegated to the future and the illusory leisure which it always seems to promise. Staff personnel largely is with the Project on a three- or six-month basis. Rightly or wrongly it has been assumed that an excavator is in the best position to analyze and report on the results of his work. In most instances, the information does not funnel in to one individual who has the responsibility alone for integrating and reporting the data. The principal problem, though, has been to devise and borrow means whereby data can be published on essentially a final basis yet at the same time be open-ended. In short, considerable time has been spent on determining how best to publish a portion of an excavation and still allow for an integrateable follow-up report on that part of the excavation still to be completed.

A related problem is one that becomes apparent to anyone who reviews the publications on any large site where excavations are spatially scattered. Too often a site in print gives the appearance of an aggregate of isolates, basically unlinked in terms of time, space, and human beings. In any one of these terms, what was the relationship between this "temple," that "palace," and certain "housemounds" well out on the periphery? Even if applied to these features, inherited temporal and cultural tags (with which ceramic "phases" become in practice interchangeable) are not substitutes for explicit statements of available connectives. Moreover, various excellent attempts to systematize nomenclature and to encourage basic theoretic orientations are generally presented on a level quite above the local field on which we must inevitably first work. Consequently, one is obligated, in order to report intelligibly on one's work, to adopt terms that Project personnel, at least, agree upon and still further to contemplate objectives and to determine how best attain them.

To a certain extent this report parallels one by Satterthwaite (1943), written as an introduction to a series of technical reports on Piedras Negras architecture. This introduction, among other things, provided the reader with an exposition of terminology and systems of numeration used in the following papers and those to appear in the future. Excavation data, particulary that relating to involved architecture, is not easily communicated, let alone digested. If communication is difficult for any single person essentially responsible for publication of results, it becomes increasingly a problem when many are bound to publish within the scope of a project. This is elementary. The present report is nothing more than a guide as elementary as its need.

We wish to acknowledge here the extensive aid given by Linton Satterthwaite in the writing of this report. Various helpful comments and suggestions have been given us by Alfred Kidder II and James C. Gifford.

A. THE MAP AND 500-METER SQUARES

The procedures and coverage of the site map, concordance of old and new designations of features, and other relevant topics will be fully treated by Carr and Hazard in Tikal Report No. 11. The map sheets completed to date will accompany this report.

Here it should be stated that Tikal has been divided into squares, 500 meters on each side, which are formed by vertical north–south lines and horizontal east–west ones. Each 500-meter space between the horizontal lines is labeled with an Arabic number; the 500-meter space between the vertical lines, by a capital letter. Both the number and letter series begin in the upper left or northwest corner of the site map. Each square is designated by a compound of number and letter (e. g., Square 5D, Square 4F).

A feature may be precisely located within a square by its distance in meters from the north and west boundary lines (e. g., 5D S220 E390).

Old designations, new technical ones, and old and new popular names will be listed in Table 1, to be included with the site map in Tikal Report No. 11.

B. DESIGNATIONS OF CULTURE FEATURES WITHIN THE SQUARE SYSTEM

B1. *Structures.* The problem of concrete definition is frankly avoided here (for one local definition, see Satterthwaite, 1943, p. 20). The term "structure" is applied freely to a variety of "constructions" conventionally termed "temples," "palaces," "ball-courts," "stela enclosures," "housemounds," and will be so applied, should they be identified as such, to "sweat houses," etc. Features within a square specifically not covered by the "structure" designation are discussed separately.

a. *Structures not overlain by later structures and floors.* In mapping and surface stripping, features are encountered which qualify as "structures." Such features have been labeled as such and entered in a numerical series for the particular square in which they fall, for example, "Str. 5D-1," indicating "Structure 1 of Square 5D." There is also a "Structure 1" in Square 4D, and so forth, for every square in which a feature, so-classifiable, occurs. Since other features, not designated as "structures" may occur within the same square, it should be emphasized that the label "5D-1" alone is insufficient.

b. *Structures overlain by later structures and floors* (the Sub-series). Sub-series numbers will be used for intentionally buried structures (or plazas, platforms, terraces, etc.; see below) which are discovered within an area of excavation and which seem to have no logical or evolutionary relationship to surface remains at the same specific or general location. The first such structure found within a square receives the structure-square prefix followed by the designation "Sub. 1" (e. g., "Str. 4F-Sub. 1"). Structures so designated are not indicated on the site map, which is intended to represent Tikal at the moment when construction ceased throughout.

It is important that "Sub-series" be distinguished from what has been termed a "Structural Development" (see C5, below).

B2. *Plazas and Courts.* Certain relatively large public areas have been called "plazas" and labeled on the site map with names. However, any such area, named or not, when it becomes the subject of investigation, may be brought into the system of square designations with the prefix "Plaza" and individual numeration. For in-

stance, the "Great Plaza," so labeled on the map, is in technical reference known as "Plaza 5D-1."

Plazas at Tikal normally comprise one or more plastered surfaces or floors (see C3) that may be integral with peripheral retaining walls. The term "plaza" may also apply to any type of occupation surface serving structures ranged about it (e. g., a tamped clay surface).

The term "court" may be used for relatively small areas which otherwise could be classed as "plazas." When investigated, such features are formally labeled as "courts" and entered in the system of square designations, with their own numerical series.

B3. *Terraces and Platforms.* Tikal abounds with examples of "structures" set on a raised "platform." While others might classify "platforms" as "structures," we have preferred to distinguish them, perhaps arbitrarily. In any event, a formal designation is provided for data stemming from investigation of the supporting platform of a structure; the latter may also be concurrently investigated. When the need arises, a platform, as is true of structures, plazas, and courts, is entered in a series of "platform" numbers for the square.

"Terraces" similarly are treated in their own numerical series for each square. No definition of "terrace" is attempted here because it is realized that consistent distinctions between "structures," "platforms," and "terraces"—perhaps even "plazas"—cannot be hoped for. One construction in Square 5D, the "North Terrace," has long been so designated and it would seem correctly so. The report on its excavation (Tikal Report No. 12, in preparation) is presented in terms of its formal designation, "Terrace 5D-1."

The link between terraces and platforms is that neither need have supported structures. This linkage might also be considered to extend to raised plazas. Obviously there was considerable overlap in architectural concepts.

To preserve the site map from a plethora of labels, platforms and terraces are not technically designated on the map.

B4. *Chultuns.* The orifices of chultuns were frequently discovered in mapping. Other chultuns have been discovered in excavation, with exits purposely concealed. Those chultuns discovered in mapping have been entered on the site map while those encountered in excavation have been omitted. Chultuns, regardless of condition, are termed as such and, within the system of square designation are entered in their own numerical series (e. g., "Ch. 5D-1").

B5. *Reservoirs.* Aguadas and structurally modified collecting areas, considered as "reservoirs," are given names on the site map. However, when excavated and/or studied in detail, such features may be assigned numbers in the same square system previously detailed (e. g., "Res. 5D-1").

B6. *Quarries.* These are commonly found in mapping and are indicated by a special symbol on the site map. When the need arises, a quarry will be handled in the same manner as prior features (e. g., "Qu. 5D-1).

C. DESIGNATIONS OF CULTURE FEATURES OUTSIDE THE SQUARE SYSTEM

C1. *Causeways.* The great intra-site avenues at Tikal have been given popular names rather than numbers on the site map. In appreciation of their contri-

bution to knowledge of the site, the names of several early explorers have been chosen for these causeways (Mendez, Maudslay, Maler, Tozzer, and Morley Causeways).

Because causeways cut across the 500- meter squares, a simple series of abbreviations for them has been adopted; for example, Cswy. Men., Cswy. Mau. Since a technical reference, such as Cswy. Men. may be prefixed to designations for excavated features (see below) and since sequential and other data from any one section of a causeway need not hold true throughout, a capital letter, in parentheses, may be used arbitrarily to specify the segment of the causeway to which the particular data apply; for instance, "Cswy. Men. (A)."

C2. *Units.* Often it will be helpful to distinguish particular parts of structures, floors, fills, refuse deposits, etc. These should be called "units," using the term in the broadest sense possible, but specifying what is referred to in each instance.

Units are numbered in a continuous series, without stratigraphic implication, within the framework of the structure, terrace, plaza, or whatever feature is being reported on. To take a hypothetical example, the stairway of Str. 6J-95 might be reconstructed on the basis of two surviving remnants. If the first two so defined for this structure, they would be formally labeled "Str. 6J-95: Unit 1" and " Str. 6J-95: Unit 2." The prefix can usually be suppressed in text when there is no chance of confusion, but of course it should be used in initial definition and particularly in tabulation.

C3. *Floors and occupation surfaces.* A horizontal or nearly horizontal occupation surface, when stratified and demonstrably controlled throughout the scope of an excavation, is labeled as a "floor" and is numbered in reverse order of time. The designation of the feature to which the floor or floors pertain serves as a prefix (e. g., "Plaza 5D-1: Floor 1").

If the excavation discloses a surface or surfaces which cannot be securely related to and thus placed in the established numbered floor sequence, the surfaces are discussed and tabulated as "units" (see C2, above), a designation without the sequential implication of a numbered "floor."

When desirable, room floors and other such surfaces are numbered in reverse order of time and in terms of "rooms" and "units" which, in turn, have as their prefix the structure designation (e. g., "Str. 6J-95: Room 2, Floor 1").

C4. *Rooms.* As noted in C3 (above), rooms are numbered. In the case of certain "temples," in which one room is behind the other, rooms are numbered in order from the outside in. In the case of "palaces," with one or more stories and complex floor plans, rooms are numbered in what appears to be the most logical order possible.

C5. *Architectural developments and additions.* When first mapped and numbered, culture features such as structures, terraces, platforms, may be known only as mounds of debris. As excavation proceeds, the final form of the construction is recovered. Work may indicate that the mapped construction was, in fact, the end result of a long process of superpositioning—that is, one is dealing with the often encountered construction-within-a-construction arrangement.

It is usually possible to segregate temporally the major and/or minor components which eventually resulted in the final mapped and numbered feature. In this event, those architectural components considered to have been built at approximately the same time and conceived of as an architectural whole are here termed an "architectural development." When the evidence requires, a given architectural development includes also subsequent relatively

minor "architectural additions" to the same architectural whole. As the concept is applied, a series of such architectural developments should involve some sort of logical continuity.

In short, we have adapted the useful Piedras Negras system (Satterthwaite, 1943, pp. 24–26) of designating the final construction and its antecedents buried beneath it. Architectural developments are numbered ordinally "-1st," "-2nd," etc. while "architectural additions" are lettered "-A," "-B," etc., both in reverse order of time. This reverse order is mandatory so that the system may be kept open at the early end (which may or may not actually be reached in excavation).

When the prerequisite of "logical continuity" ceases to apply, designations of still earlier constructions at the same spot are handled in the appropriate Sub-series of the map square (see BI -b, above). This is a fundamental difference between the system used for Piedras Negras and the one here described for Tikal.

The system of designation just proposed and its contrast with that of the Sub-series can be illustrated with a hypothetical example: Str. 6J-95, a "temple," is excavated and yields a long series of major and minor rebuilding of logical continuity throughout. The final temple, showing no evidence of minor "additions," is termed "Str. 6J-95-1st." Remains of an earlier "temple" are found within "-1st;" these remains are labeled "Str. 6J-95-2nd." However, the stairway of "-2nd" was rebuilt and a room added. These "additions" require division of the "architectural development," and are indicated by letters. For example, the final form of "Str. 6J-95-2nd" with its additions is designated "Str. 6J-95-2nd-A" while the earlier form is "Str. 6J-95-2nd-B." A platform may then be encountered which, despite the fact of stratification, shows no logical connection with the later "-2nd-B." The platform is then designated in the Sub-series for platforms for Square 6J; if the first so defined for the square, it becomes known as "Platform 6J-Sub. 1." Excavation of it might disclose that it actually encompasses two "architectural developments:" "Platform 6J-Sub. 1-1st," and an earlier "-2nd."

Satterthwaite's system of designation has been modified to the extent that terms have been changed and the "sub-series" concept has been introduced. Satterthwaite applied ordinals to "periods" of building activity, while "phases," or divisions of "periods," were lettered. It is felt that both terms ought to be formally reserved for use in site and regional temporalization. Since, in fact, there are few terms available and the majority of these are in a sense pre-empted, we have been forced to fall back on tags like "development," for "period" and "addition" for "phase." But all things considered, these substitute terms do reflect architectural process, particularly when the principle of logical continuity is applied.

At times, application of this system may produce ponderous results but, in that event, the very real complexity of the situation which is being handled (and tabulated—an important consideration) should be kept in mind in evaluating the usefulness of the system. We are aware of the objection to the use of ordinal numbers. They are used to provide an immediate visual and verbal distinction between culture features (-1, -2, -3, etc.) and "architectural developments." Finally, it should be noted that only rarely, and then mainly in initial definition, is it necessary to use such terms as "architectural development"; a designation such as "Str. 6J-95-2nd" speaks for itself.

C6. *Construction stages*. Normally in analysis, construction conceived of as a whole, that is, as an "architectural development," will be found to have been built by "construction stages." The pyramid supporting a temple may be found

to have been built by superimposing essentially finished, plastered-surfaced platforms. A "masons' stairway" and a final stairway may also be found. And the temple proper may have followed such construction stages as the building of platform and walls, then vaults and roof masonry, and finally a roof comb. Where significant, such construction stages may be distinguished and numbered in reverse order of time. These stages are numbered within the scope of the "architectural development" or "addition" to which they apply.

C7. *Burials.* As is true of caches (see C8), Tikal burials are controlled by a simple numerical series (Burial 1, Burial 2, etc.). By "burial," the whole association of skeleton, furniture, and grave type is intended. Skeletons within a single burial are distinguished by capital letters (Skeleton A, for example) unless the situation evidences a succession of separate interments, in which case the temporally segregated skeletons, if ascertainable, are given separate burial numbers. Should it be required, the type of grave may be used to modify the Burial designation (e. g., "tomb Burial 10," "simple Burial 2," "crypt Burial 1").

C8. *Offerings.* Intentionally concealed offerings, situated apart from burials, are handled as "caches," a conventional term, and numbered in a simple continuous series for the site, reflecting order of discovery only; thus "Cache 1," "Cache 2." Caches ought to be distinguished from "surface offerings," in which no attempt at concealment was made, if and when such offerings are recognized. In such cases, it is suggested that they be entered in a numbered series of explicit "Surface Offerings."

C9. *Monuments.* The revised list of plain and carved stelae and altars for Tikal is given in Table 2 of Tikal Report No. 11. The conventions for indicating on the map whether a monument is an altar or a stela, and whether it is plain or carved, are indicated in this table. A stone is considered to be carved regardless of the amount of carving other than cutting to shape or for some presumed utilitarian purpose.

a. *Stelae.* The simple numbering previously established (Maler and Morley) for carved stelae is maintained and added to with new discoveries. In the case of plain stelae, the group-letter prefixes instituted by Morley have been dropped in favor of a continuous series of numbers prefixed by "P" for "plain." The abbreviation for stela is "St." in publications, except on the site map.

b. *Altars.* Altars, plain and carved, are handled in the same manner as stelae, the only difference being the use of the abbreviation "Alt." in published text, charts, and drawings.

c. *Miscellaneous stones (the MS Series).* A special series has been established in which each new "stone" receives the next available number, regardless of where it is found at the site. The MS category may be used as a "catch-all" for any large stone object, or fragments of one, for which a label seems desirable. However, the chief need for the series is in keeping track of fragments of monuments.

As previously noted, we have two separate series of numbers for stelae, carved and plain, and two for altars, carved and plain. If a newly discovered fragment, *regardless of its size*, is from a monument clearly belonging in one of these four categories, and clearly not a part of some incomplete one already numbered, the new fragment constitutes an additional monument and receives the next number in the appropriate series for numbered monuments. If the newly discovered fragment is proved to be part of a previously numbered stela or altar (many of which at Tikal are incomplete), it is Fragment 2 or 3, etc. of that already numbered monument. But if there is uncertainty in this respect—i. e., if it *may* or *may not* belong with

a known and already numbered monument—the fragment should be numbered in the MS series (e. g., MS-1, MS-2).

In the future, new discoveries may show that a fragment which has been labeled in the MS series belongs with a monument which has been, or is then, numbered in the conventional series as a plain or carved stela or altar. In such a case, the MS number will be "vacated." However, it should not be used again. Consequently, an MS number always refers to the same thing and, in many cases, no other designation will ever be applied to the subject.

A single MS number may be applied to a group of fragments which clearly belong to one monument only. The members of the group are distinguished with lower case letters (-a, -b, etc.).

It is quite possible that one may find a fragment which surely raises the known total of monuments of all categories, but one cannot decide on the proper category for the fragment, that is, whether it is from a stela or an altar and/or whether carved or plain. A new plain butt of a stela would be an example. Such a fragment, numbered in the MS series, should nevertheless be counted in determining the total of known monuments of all categories.

d. *Monuments or their fragments with changed function.* If a stela or a fragment thereof was secondarily used as an altar (or vice versa), the stone is designated in accordance with its original use, and this designation is equated with a second designation reflecting its secondary use. If the stone was carved in original use, it is considered to remain carved in the secondary use unless there is evidence that the carving was no longer of interest.

An example is a stela fragment re-used as an altar. Altar 15 (secondary function), in front of Stela P21 in the Great Plaza (see Tikal Report No. 12) is also Fragment 2 of Stela 2 (original function). The major part of the original carving on the fragment was effaced at the time it was reworked for use as an altar; effacement was followed by simple linear incisions which qualify (see C9, introduction) the stone as carved and its position qualifies it as an altar. In this case, the new carving, rather than the original carving, determines the carved category. If there had been no new carving, in view of the fact that the original carving had been largely effaced and that which remained turned face down, the squared fragment would have been classed as a plain altar. Depending on context, then, Altar 15 is formally designated as "Alt. 15 (St. 2: Frag. 2)," and/or "St. 2: Frag. 2 (Alt. 15)."

e. *Missing monument (the "X series").* To date, a few empty stela pits have been found at Tikal. The identification of the pit as a stela pit depends, of course, on shape and depth, and on location; it may be confirmed by surviving cache material. If the monument that was removed from the pit cannot be identified among the known and numbered monuments, it is proposed that a number in a special "X" series be used to designate the missing monument. If known to have been a stela, the first in this series would be termed "Stela X-1," the next, "Stela X-2," and so forth. If the evidence warrants it (e. g., a circular depression in front of a stela or stela pit), an inferred altar may be so designated within an "X" series for altars. While in some cases it may be possible to infer with some certainty that the monument was carved, or was plain, other cases can be anticipated in which determination would be impossible. Hence, the "X-series" label does not make these distinctions, though they may be added in parentheses.

C10. *Conventions used in plans, sections, and elevations.* So that a key need not be included in every report presenting sections, we state here the few conventions adopted. These follow:

. . . . DEBRIS LINE

——————————— KNOWN FEATURES

. . . . RECONSTRUCTED FEATURES, ETC.

—·—·—·—·—·—·—·— EXCAVATION LIMIT

The scale used is of course conditioned by various factors. By and large, data will be presented at 1:50, 1:100, 1:200, 1:400, and in the case of the site map, 1:2000. The metric system is used throughout.

C11. *Ceramics*. It has been tentatively decided that pottery studies involving Tikal ceramics will, insofar as is possible, make use of the analytic methods and nomenclature outlined by Smith, Willey, and Gifford (1960). Accordingly, pottery types will be recognized, identified, and described in this vein. In accord with the evidence, types will be arranged in terms of ceramic complexes that are indicative of certain specified time intervals. Such ceramic complexes will be components of the "time-spans," described below, and additionally they will be principal data in eventual synchronization of time-spans in the formulation of "site phases," also described below.

D. CORRELATIVE DEVICES

While full respect is paid to the need for presenting a factual record of investigations, there naturally has been concern with the goal of such records, and with how best to organize facts in time and space so that the goal may be reached. Obviously, interpretation of facts in time and space for Tikal as a whole is one such goal. Site periodization based on a broad evaluation of culture change is fundamental in this regard. And a preliminary to periodization is a device serving to integrate and temporalize all data from all investigations throughout the site.

D1. *Time-spans*. This term is used for sequent segments of time as represented by stratifications or other evidence in the context of individual investigations. A given time-span is meaningful because of what can be assigned to it.

The content of a time-span consists of physical remains of architecture, monuments, caches, burials, ceramics, other artifacts, etc., and the procedural and conceptual modes which may be inferred from them (for the latter terms, see Rouse, 1960).

In the case of construction, sequent "architectural developments" (see C5, above) are a fundamental source for a series of time-spans. However, post-construction human activity (that is, within the scope of the excavation), if it can be segregated, may become the principal diagnostic for formulation of the most recent time-spans.

If it serves any purpose, the history of an individual unit of investigation, e. g., a stela fragment, may be stated in terms of time-spans applicable to it only.

Time-spans are numbered in reverse order of time (Time-span 1, Time-span 2, etc.), keeping the series open at the early end, as in the case of architectural developments which may often, as noted, delineate the time-spans themselves. To take an example, the latest

recognizable time-span of Str. 6J-95 is designated "Str. 6J-95: Time-span 1," the next earlier "Str. 6J-95: Time-span 2," and so on back through time. Without such context, "Time-span 1" is of course meaningless.

It is intended that reports dealing with sequential culture activity present, at least in tabular or summary fashion, the sequence in terms of time-spans with their tangible and inferential compositions.

D2. Site phases. An objective of all Tikal investigations is the eventual correlation of time-spans at all excavations to form phases valid for the site as a whole, and covering as many categories of data as possible (e. g., ceramics, offerings, architecture, artifacts, burials, monuments). Synchronization of time-spans throughout the site (resulting in variable alignments of the utilized time-span series) will allow collective consideration of the thus correlated components in a search for evidence of culture change. And it is this change—whether it be in sculpture style, innovations in architectural, ceramic, lithic, or offertory complexes, or other factors—that will guide the delineation of site phases. If excavations prove to have been so distributed at Tikal that the remains are referable to the total social structure throughout the occupation, it is to be anticipated that a reasonably realistic sequence of site phases will emerge.

We are not now bound to commit ourselves to a system of designating site phases and it is fully realized that designation on this level is a problem with awesome pitfalls. Until excavations have proceeded to a point where final seriation is possible, it is intended to interrelate individual reports of excavations as far as feasible, comparing, through cross-references, their respective time-span sequences. Preliminary recognition of change and its potential bearing on eventual site phasing should be emphasized.

It follows that a mere breakdown of total site evolution into named (rather than numbered) phases is not an end in itself, but rather a prerequisite context for an appreciation of a functioning Tikal.

In the interim we will inevitably find ourselves using existing ceramic, regional, and area terms (e. g., Late Classic) in segregating data temporally, but with the realization that various such terms may be locally imprecise, and that their indiscriminate use might lead to incorrect conclusions.

REFERENCES

Rouse, I.
1960 The Classification of Artifacts in Archaeology. *American Antiquity*, Vol. 25, No. 3, pp. 313–23. Salt Lake City.

Satterthwaite, L
1943 *Piedras Negras Archaeology: Architecture. Part 1, No. 1. Introduction.* University Museum, Philadelphia.

Smith, R. E., G. R. Willey, J. C. Gifford
1960 The Type-variety Concept as a Basis for the Analysis of Maya Pottery. *American Antiquity*, Vol. 25, No. 3, pp. 330–340. Salt Lake City.

TIKAL REPORTS
Nos. 11, 12 in preparation.

TIKAL REPORT NO. 6

THE CARVED WOODEN LINTELS OF TIKAL

William R. Coe and Edwin M. Shook
Appendix by Linton Satterthwaite

CONTENTS

Page

INTRODUCTION . . . 21

BASIC CONCLUSIONS . . . 22

SURVIVING EVIDENCE OF CARVED LINTELS AT SITE . . . 22

Temple 1. Temple II. Temple III. Temple IV. Structure 10 . . . 22

TERMINOLOGY AND FACTORS IN RECONSTRUCTION OF MISSING LINTELS . . . 23

CRITICAL REVIEW OF PRIOR ASSIGNMENTS OF LINTELS . . . 25

1. Maudslay's Assignments and Observations . . . 25
2. Maler's Assignments and Observations . . . 26
3. Spinden's Assignments and Observations . . . 27
4. Morley's Assignments and Observations . . . 28
5. Beyer's Assignments and Observations . . . 28

ASSIGNMENTS ON THE BASIS OF RECENT WORK . . . 29

1. Matching of Lintel Fragments . . . 29
2. Problem of Outer Doorways . . . 30
3. Problem of Lintel Orientation . . . 31
4. Associations of Beams no Longer in Position . . . 31
5. Final Assignments . . . 32
   - A. Temple I . . . 32
   - B. Temple II . . . 34
   - C. Temple III . . . 36
   - D. Temple IV . . . 37
   - E. Structure 10 (Structure 5D-52) . . . 40
   - F. Summary . . . 42

MISCELLANEOUS DATA . . . 42

1. Observations on Beam Cutting, Carving, and Installation . . . 42
2. The Question of Resetting of Lintels . . . 45
3. Lintel Beam Butts and Carbon-14 Samples . . . 45

APPENDIX–INSCRIPTIONS AND OTHER DATING CONTROLS . . . 47

INTRODUCTORY REMARKS . . . 47

Page

Changed Long Count Positions 47

Improved Corpus of Illustrations 47

Revised Style Dating 48

Lintels as "Monuments" 48

Related Texts on Pairs of Lintels 49

Criteria for Identifying Dedicatory Dates 49

"Early" and "Late" Tikal Monuments 51

STYLE DATES FOR THE SEVEN KNOWN CARVED LINTELS OF FIVE BUILDINGS . . 51

LINTELS 2 AND 3 OF TEMPLE IV (STR. 5C-4) 54

General Remarks 54

Comment on the Inscriptions 54

Summary of Chronology (Lintels 2 and 3 of Temple IV) 56

Notes on Particular Glyph Blocks 56

Interpretative Notes 57

The Dedicatory Date 59

Isolated "Batab" Katuns 60

"Emblem" Glyphs 63

Unusual Postfix with Period Glyphs 63

LINTELS 2 AND 3 OF TEMPLE I (STR. 5D-1) 64

General Remarks 64

Comment on the Inscription 65

Missing Glyph Panels ??? 65

Relationships of the Two Texts 66

Summary of Chronology (Lintels 2 and 3 of Temple I) 67

Date on Lintel 2 67

Dates and Secondary Series on Lintel 3 68

Long Count Positions of Dates on Lintel 3 68

The Dedicatory Date 70

THE CARVED LINTEL OF STRUCTURE 10 (STR. 5D-52) 72

General Remarks 72

Comment on the Inscription 73

No Missing Glyph Blocks 73

Page

The Dedicatory Date 74

LINTEL 2 OF TEMPLE III 76

General Remarks 76

Comment on the Inscription 76

The Dedicatory Date 77

LINTEL 2 OF TEMPLE II 77

General Remarks 78

The Dedicatory Date 78

TABLE 1–SUMMARY OF PAST AND PRESENT ASSIGNMENTS OF LINTELS 79

TABLE 2–DIMENSIONS OF DOORWAYS, INSET OF LINTELS, LINTELS AND COMPONENT BEAMS 80

TABLE 3–PROSKOURIAKOFF'S STYLE-DATE LIMITS OF TIKAL CARVED LINTELS 81

REFERENCES 82

FIGURES 84

1–10 Beam Layouts: Figs. 1–5 from Maudslay Pl. 71
Figs. 6–10 from Maudslay Pl. 72

11 Excavated Carved Fragments: a–d Temple I, Lintel 3
e– Temple IV, Lintel 3

12 Temple I, Lintel 2

13 Temple I, Lintel 3

14–16 Details of Temple I, Lintel 3

17 Temple II, Lintel 2

18 Temple III, Lintel 2

19,20 Details of Temple III, Lintel 2

21 Excerpts from Lara's Drawings of Temple I, Lintel 3
Temple III, Lintel 2
Detail of Installation of Temple III, Lintel 2

22 Temple IV, Lintel 2

23–28 Details of Temple IV, Lintel 2

29 Temple IV, Lintel 3

30–35 Details of Temple IV, Lintel 3

36 Structure 10 Lintel

37 Details of Structure 10 Lintel

INTRODUCTION

Much has been written on the extraordinary carved lintels of Tikal. Throughout this considerable literature one encounters arguments and corrections as to which structures and doorways the various lintels, long removed from the site, originally pertained. And despite attention given in past years to locally surviving carved lintels, two partially intact ones did remain to be recorded.

Our purposes in this paper are to put on record previously unillustrated carved lintels and to assign to their original locations at Tikal the groups of whole and fragmentary lintel beams to be found in the Basel Museum für Völkerkunde, in the British Museum, and in the American Museum of Natural History. Preliminary comment and illustrations toward these ends have appeared recently (Shook, 1957, Fig. 37; Tikal Report No. 1; Coe, 1958).

Correct assignments are, we feel, possible now, principally on the basis of field work carried out in 1957. The objective of attributing a particular lintel to such-and-such a structure is motivated by something more substantial than simply eliminating loose ends with neat proveniences. That a lintel, say, now in Switzerland, belongs unquestionably over the innermost doorway of Temple I is of prime archaeological importance. Carved lintels with chronologically significant texts offer a striking opportunity for correlation of radiocarbon, stylistic, and hieroglyphic data. The lintels, of course, have real or potential value in apprehending the construction sequence, or lack of it, among those buildings carrying such lintels.

The essential facts regarding the removal of a good proportion of the carved Tikal lintels in the 1870's and in 1914 are provided by Morley (1937–1938, Vol. 1, pp. 77ff, 346ff), using Maler (1911) as a major source. Data on lintel removal supplementing that summarized for Temple I by Morley is presented in Tikal Report No. 7.

The earliest published record of the Tikal lintels resulted from the exploration of the site by a party led by Modesto Mendez and Ambrosio Tut in 1848; the party included an artist, Lara, who evidently managed to draw portions of Lintel 3 of Temple I and Lintel 2 of Temple III (Fig. 21; also Beyer, 1943; Schaeffer, 1951). In 1875, J. W. Boddam–Whetham purchased in Flores two fragments from a carved lintel. Now in the British Museum, these are known to be from Lintel 3 of Temple I (Figs. 4, 5, 13a). In 1877, Gustave Bernoulli had various lintels removed which eventually were deposited in the Museum für Völkerkunde in Basel, Switzerland; this material constitutes the bulk of Lintel 3 of Temple I (Figs. 2, 3, 13b, c), Lintel 2 of Temple IV (Figs. 6–10, 1, 18), and Lintel 3, also from Temple IV (Fig. 29). In 1914, H. J. Spinden removed two beams from the only known carved lintel of Structure 10 (Figs. 36c, d; 37b) and salvaged the surviving beam of Lintel 2 of Temple II (Fig. 17c); the three beams are in the American Museum of Natural History. Two beams from the Structure 10 lintel (Fig. 36b, e) had been removed by Peteneros prior to 1904 and presumably transported to Flores.

Our work consisted of measuring all *in situ* beams occurring in structures now carrying or known to have carried carved lintels, in addition to measuring all available mortar impressions of beams now missing. Carved lintels, or rather their remains, still at the site were fully recorded. The rooms of Temples I, II, and IV and Room 2 of Temple III were cleared of debris, in which process important fragments of wood carving were re-

covered. Finally, all Tikal lintels in the aforementioned institutions were studied and photographed, and of those in Europe latex molds were made.

Despite our inclination, perhaps naive, to deal in some way with the art of these exotic carvings, we must confine this report to the demonstrable facts, anticipating as data accumulate and appear in print (as in the case of Tikal stone monuments) an eventual comprehensive, comparative study of local sculpture in stone and wood. To facilitate gross comparisons between wood and stone sculptures, our primary illustrations here are at a scale of 1:12, a scale previously selected for stela and altar illustration (Tikal Report No. 4). All measurements are in meters. We have attempted to provide thorough illustration of the lintels, particularly of those previously unillustrated, or illustrated on the basis of a cast, in order to allow others the requisite data for art studies.

The Appendix, by Linton Satterthwaite, deals essentially with the epigraphy of the lintels but importantly contains previously unpublished style dating estimates for the lintels by Miss Tatiana Proskouriakoff.

We wish here to record our appreciation to Mr. Adrian Digby of the British Museum, London; Dr. Alfred Buhler of the Museum für Völkerkunde, Basel; and Dr. Gordon Ekholm of the American Museum of Natural History, New York for their kindnesses, interest, and aid during our studies here and abroad.

BASIC CONCLUSIONS

The bulk of this report is composed of the raw supporting data for relatively few major conclusions. To orient those wishing this data and to accommodate those mainly concerned with overall results, the following abstract is given here.

Five structures, all but one of the temple type, contained carved wooden lintels. Seven carved lintels in all are known. Texts expressing dates survive on five of these lintels.

Temple I. Doorway 2, Lintel 2 (Fig. 12). Doorway 3, Lintel 3 (Figs. 13–16). Lintel 2: Text portion comprises a small glyphic panel. Style date, 9.17.10.0.0 ± 2 Katuns. Lintel 3: Style date, 9.16.0.0.0 ± 2 Katuns. Dedicatory date of both lintels was no later than 9.14.0.0.0 (Appendix).

Temple II. Doorway 2, Lintel 2 (Fig. 17). Style date, 9.16.0.0.0 ± 2 Katuns.

Temple III. Doorway 2, Lintel 2 (Figs. 18–20). Style date, 9.19.0.0.0 ± 2 1/2 Katuns.

Temple IV. Doorway 2, Lintel 2 (Figs. 22–28). Doorway 3, Lintel 3 (Figs. 29–35). Lintel 2: Style date, 9.15.10.0.0 ± 2 Katuns. Lintel 3: Style date, 9.16.0.0.0 ± 2 Katuns. Dedicatory date of both lintels was no earlier than 9.15.10.0.0; probably 9.16.0.0.0. (Appendix).

Structure 10. Inner central doorway, 3rd story, carved lintel (Figs. 36, 37). Dedicatory date, 9.15.10.0.0. Style date, 9.16.10.0.0 ± 3 Katuns.

SURVIVING EVIDENCE OF CARVED LINTELS AT SITE

Temple I. The three doorways were spanned by lintels. The outer doorway contains

plain Lintel 1 comprising two beams, Beam *a*, the outer, and Beam *b*, the inner one. Dimensions are given in Table 2. The split remains of the inner half of Beam *a* were found in 1956 at the base of the temple stairway.

The middle doorway is spanned by carved Lintel 2, originally composed of four beams, of which only two, Beams *a* and *b*, survive. The two beams are shown in Fig. 12.

Lintel 3 is known at the site by plaster impressions in the wall masonry. As brought out elsewhere (p. 33), a fragmentary, mutilated but noticeably carved beam, found on the floor of the front room, must pertain to this lintel, indicating the whole to have been carved (see Fig. 13 e).

Temple II. Three doorways of which only the innermost retains a lintel, in this case plain. However, fragmentary carved beams, illustrated by Maler (1911, Pl. 18, 2; see our Fig. 17) are said to belong to this structure.

Temple III. Lintel 1 is totally missing. Lintel 2 is carved and lacks only Beam *a* (Figs. 18–20).

Temple IV. Only Lintel 1, plain, remains in the outer of the three doorways. Impressions of wood beams across Doorways 2 and 3 are well preserved and carved fragments and cut-off butts allow the conclusion that these doorways did once carry carved lintels.

Structure 10. While many lintels are still to be seen in this complex building, only one carved lintel (Figs. 36, 37) is on record. This lintel occurred across the central inner doorway of the third story.

In summary, substantial portions of carved lintels are today to be found *in situ* only in Temple I (Lintel 2) and in Temple III (Lintel 2). But again it should be noted that room excavation in Temples I through IV yielded many carved lintel fragments. These fragments and measurements of individual beams are primary data for our assignments of the lintels to specific temples and doorways indicated in this report.

TERMINOLOGY AND FACTORS IN RECONSTRUCTION OF MISSING LINTELS

1. Lintels are composed of three parts: a central exposed portion visible between the jambs of the doorway, and a hidden area, the butt, on either end buried in the masonry.

2. When carved, carving is on the underside only of the lintel. In no known case does carving extend to the sides of the lintel nor entirely to the doorway jambs. A plain border thus surrounds the four sides of the carved panel and shows that the panel was planned for its doorway.

3. Within this carved series, lintels are composed of four or more beams, of varying widths for a single lintel. Each lintel beam is lettered (lower case and italicized), *a* being the first, that is the outside beam, *b* the next one in, and so forth; "outside" is determined by the orientation of the doorway exit. Originally, we numbered lintel beams (Shook, 1958); for the sake of greater clarity; letters are here substituted.

4. In the case of a multi-roomed temple (e. g., Temple I), lintels are numbered from the outside in. Thus we can locate a single beam as to temple and lintel, for instance, Beam *d* of Lintel 2 of Temple III.

5. The *width* of a doorway is measured from jamb to jamb at the level of the existing or

prior resting place of the lintel. Since two jambs are not necessarily exactly parallel, we can only say that a single measurement of width is within a very few centimeters of the average width.

6. The *thickness* of a doorway is the measurement of one of the two wall jambs. The widths of paired jambs are not necessarily the same.

7. Every lintel discussed in this report is *inset* a variable amount from each wall face. Actually, the amounts of insetting vary little (Table 2), though the width of the constituent beams may vary greatly, indicating that there was selection and trimming of beams to obtain the desired fit in the particular doorway. An illustration incidentally of lintel inset has been recently published (Coe, 1958, p. 80).

8. *Lintel width* is determined across the component beams from the outside edge of the outermost beam (Beam *a*) to the outer edge of the innermost one. Where the lintel has been lost or removed, lintel width can be calculated on the following basis: doorway thickness less total of the two inset dimensions. If insets have been lost, an average can be determined from surviving insets within the structure. If the insets are preserved, a simple measurement from the innermost portion of one to the other suffices to establish lintel width.

9. The *number of beams* in a lintel no longer present can frequently be ascertained by inspection of the masonry for impressions of the beams which were set in and covered by mortar. In instances of lintels removed in relatively recent times because they were carved, when the plain areas were chopped off to lighten weight and make handling easier, these butt portions were usually discarded in the vicinity of the same doorway. If collected and properly paired and measured, they can furnish not only a true or minimum count of constituent beams but also a true or minimum width for the lintel.

10. *Lintel length* is simply a dimension from end to end of component beams. Note, though, that beams vary slightly in length for a single lintel; only a single dimension is given in Table 2. Where a lintel has been removed, lintel length can be measured from the often intact terminal impressions in the masonry. The fact that individual beam lengths do not vary greatly (and so are not given) is an additional proof that beams were worked to shape and size for use in one particular doorway.

11. *Panel width* is a "horizontal" dimension for the one design as one looks up at it. In all known cases, panel width is less than lintel width since carving does not extend to the edges of the outermost and innermost beams, but rather stops short to allow plain borders of variable width.

12. *Panel height* is a dimension of the design panel at a right angle to panel width. Panel height is taken from the bottom of carving to the top of carving. In all known cases at Tikal, panel height is a central segment of lintel length (i. e., butt to butt) and is slightly less than doorway width. The carved scene is always vertically divided by the division lines between the individual beams. It follows that if we have a beam, for example one of those in Basel, that retains total panel height, there are only certain doorways of sufficient width to be potential sources for it and all others with which it was associated. Note that panel height is the equivalent of "Height A" (the design-base to the top of the stone) employed in stone monument description (Tikal Report No. 4, p. 98).

13. *Figure references*: Figs. 13, 17, 19, 22, 29, and 36 show the positions of the lettered beams as finally determined. For convenience, these lettered beams are referred to as if they were separate figures.

CRITICAL REVIEW OF PRIOR ASSIGNMENTS OF LINTELS

Table 1

The principal studies of the carved lintels of Tikal are those of Maudslay (1889–1902), Maler (1911), Spinden (1913), Morley (1937–1938), and Beyer (1943). De Rosny's publication (1882) contains excellent plates of the lintels in Basel but is not concerned with the problem of precise assignment.

1. *MAUDSLAY'S ASSIGNMENTS AND OBSERVATIONS*

His floor plans (1889–1902), Vol. III, Pl. 69) and text (pp. 44–50) as well as photographs provide considerable but scattered information.

A. TEMPLE I

His Pl. 71 (comprising beams in our Figs. 1–5) is captioned "Part of a wooden lintel, probably from one of the doorways of Temple A [i. e., Temple I]. Maudslay's Pl. 72 (our Figs. 6–10) is captioned "Wooden lintel, probably from outer doorway of [Temple I]."His Pl. 69 gives a plan of Temple I with the following labels: Doorway 1, "Lintel removed"; Doorway 2, "Two carved beams in place"; Doorway 3, "Lintel removed." Pl. 70, devoted to photographs of Temple I, clearly shows a lintel across the first or outer doorway. His notes on Lintel 2 of Temple I recorded that "two beams of the middle lintel ... remain in place, well carved in medium relief, but much decayed." (Text, p. 45). He further states (*ibid.*, p. 46) that the "outer and inner lintels in [Temple I] have disappeared..."

The principal disagreement between Maudslay's and recent observations lies in his recording Lintel 1 as missing when, in fact, one beam of it appears plainly in his photographs, partly dangling, over the temple doorway.

B. TEMPLE II

His plan is labeled as follows: Doorway 1, "Plain lintel" with four beams shown in his section; Doorway 2, "Carved lintel much destroyed" with five beams depicted; Doorway 3, "Plain lintel" with five beams shown. His text (p. 47) states that the "beams over the middle doorway are ornamented with carving, now much decayed."

To anticipate our conclusions, Maudslay erred only in the number of beams depicted in his temple section; the three lintels were actually composed of five, five, and six beams respectively.

C. TEMPLE III

Captions on his plan read, for Doorway 1, "Beams fallen," and for Doorway 2, "Carved beams much destroyed." The great lintel in Basel (Pl. 77; our Fig. 29) is captioned "Temple C (?) [Temple III]. Photograph of a plaster cast from the inner doorway." In this regard, he comments in his text (p. 45) as follows:

> "This lintel I have ascribed to the inner doorway [of this temple] but am no means sure that this location is correct. The dimensions agree fairly well, but on my original plan of the building there is written across the doorway 'Carved beams much destroyed'; this note may, however, have been written on observing some small fragment of carving on one of the ends of the beams left embedded in the wall."

He goes on to suggest that perhaps alternatively the great lintel now in Basel (Fig. 29) came from Temple V (his "Temple D"). The fact is, of course, that that structure has but a single doorway which is spanned by an intact plain lintel.

D. TEMPLE IV.

No notes are given on his plan ("Temple E") nor does his text contain information on doorways and lintels. As indicated in Table 1, Doorway 3 is known to have been the source of the great lintel in his Pl. 77 (our Fig. 29) while the lintel in his Pl. 72 (our Fig. 22) is in fact Lintel 2 of Temple IV rather than Lintel 1 of Temple I.

2. *MALER'S ASSIGNMENTS AND OBSERVATIONS*

A. TEMPLE I.

The outer doorway "is spanned by two very broad but quite plain tsapote beams . . ." while the second doorway was observed to be spanned by two carved beams surviving of the original four (1911, pp. 27, 28). He noted evidence in the masonry of five beams of Lintel 3, all removed except for one "lying on the ground in 1895." "The figure carved upon it shows a handsome profile" (p. 28). This beam presumably is the partial one in our Fig. 13e.

B. TEMPLE II.

For the outer doorway, Maler notes (p. 29) that it was originally composed of five beams which "were wantonly torn out . . . Whether the tsapote beams were carved on the underside and what has become of them, nobody can tell." The second doorway was "spanned with five beams . . . with very fine carving on the underside. All these beams were torn out by plunderers . . . and three were carried away" (pp. 29, 30). One partial beam from this lintel was found by him in 1895 while a smaller fragment, "half burned," was found by him in 1904 "among the fallen masonry," as if it had been intentionally hidden. These two fragments appear in his Pl. 18, 2 and our Fig. 17. He did not believe that these two were from contiguous beams. The third doorway was spanned by six plain beams, all in position.

C. TEMPLE III.

The outer doorway was found to have been "spanned by six broad and thick . . . beams, which have been pulled out and carried away by depredators, and this makes it impossible now to say whether they were carved . . . or not (p. 37). He recorded Lintel 2 as having originally comprised ten carved beams, the outer of which (Beam *a*; see Fig. 18) had been "removed" prior to his 1895 visit (p. 37). Between 1895 and 1904 "vandals had hacked off great pieces with their machetes," thereby discouraging him from an attempt to photograph the lintel (p. 37). A brief but essentially accurate description of the carved panel is given (*ibid.*).

D. TEMPLE IV.

The first doorway was observed to have a plain lintel of six beams, all in position. Six beams, all presumed to have been carved, had been removed from the second doorway. The third doorway, similarly robbed of its lintel, showed evidence of having carried "eight (possibly only seven) tsapote beams . . ." (p. 42). By comparison of carved panel and doorway measurements, Maler demonstrated that the lintel in our Fig. 29 could have come from the third doorway, as Lintel 3 (pp. 42, 43).

E. STRUCTURE 10.

Maler was the first to record the lintel from this structure, a portion of which was later salvaged and deposited in the American Museum of Natural History (Figs. 36, 37).

> "There were formerly exactly five of these lintel beams richly carved on the underside. Two of them, of course the best preserved ones, have been carried away and only three of them, riddled by [termites] and half decayed, are still in place. But even from these, pieces of the carving have been cut away here and there . . ." (p. 17).

A fanciful description of the surviving portion of the lintel is given by Maler (*ibid.*).

Maler was a most competent observer. But curiously, at no point in handling lintels did he attempt to correct Maudslay's confusion and error (e. g., Lintel 2 of Temple III and Lintel 1 of Temple I).

3. *SPINDEN'S ASSIGNMENTS AND OBSERVATIONS*

Spinden's data on the carved lintels were evidently derived from extant publications rather than field work. It was not until 1914 that he visited Tikal while his study of the site was published in 1913. Information respecting the Tikal lintels is contained on p. 257 of that publication (Spinden, 1913).

A. TEMPLE I.

Spinden follows Maler's observation of Lintel 1 as plain. As to the two missing beams of Lintel 2, he suggests those in Maudslay's Pl. 71 as possibilities (our Figs. 1–5) since these "fragments seem to be parts of two beams" (note that Figs. 1–5 show fragments of four rather than two beams). For basic information on Lintel 3, he correctly follows Maler, adding only that dimensions preclude the beams in our Figs. 6 through 10 from being this lintel.

B. TEMPLE II.

Lintel 1 is described in Maler's terms (i. e., missing) but with the deceptive addition of "possibly carved." He goes on to assign the beams in our Figs. 6 through 10 to this lintel; these "probably came" from this doorway. His comments on Lintels 2 and 3 of this structure correspond to those of Maler.

C. TEMPLE III.

Maler is followed throughout.

D. TEMPLE IV.

Lintel 1 is listed as plain and in position, following Maler. He notes the loss of beams of Lintel 2 and argues on the basis of incompatible measurements that the beams in Figs. 6–10 could not fit in this doorway, making the choice of Lintel 1 of Temple II as their source "all the more certain." Without reference to Maler's conclusion, the lintel in our Fig. 29 is attributed to the third doorway of Temple IV.

Spinden, in light of more recent data, erred in three instances: in disregarding the combined widths of the beams he identified among those in Figs. 1 through 5 as the missing two beams of Lintel 2 of Temple I; in assigning the beams in Figs. 6 through 10 to the first doorway (Lintel 1) of Temple II; and in ruling out the now apparent correct assignment of these same beams to the second doorway of Temple IV on the basis of what in retrospect must have been incorrect dimensions.

4. *MORLEY'S ASSIGNMENTS AND OBSERVATIONS*

Morley (1937–1938; Vol. 1, pp. 346–355) summarized past attributions and in various ways clarified a rather chaotic situation. He reassigned European material on the basis of new measurements of lintels and doorways and beams proper as well as observations of plaster impressions of beams (as did Maler), measurements of insets, first hand knowledge of extant Tikal lintels, both plain and carved, and, finally, of stylistic considerations.

Morley's conclusions may be summarized as follows. The beams in Figs. 2, 3, and 4 form a partial lintel. The arrangement in Maudslay's Pl. 72 (our Figs. 6–10) is broken, taking the beams in our Figs. 6 and 7 and joining them with the beams in Figs. 2, 3, and 4 so that the nearly complete lintel, from left to right, comprises the beams in Figs. 6, 7, 2, 3, 4. These five beams (with two opposite glyph panels) comprised (though not without some doubt on Morley's part) a substantial portion of Lintel 2 of Temple IV (pp. 253–255). He also suggests (p. 355) that the beams in Figs. 1 and 5 "may possibly belong to Lintel 2 of Temple IV."

The usual data are again used to assign the lintel in Fig. 29 to Temple IV as Lintel 3 (pp. 351, 352).

Left with three pieces to be assigned (see Figs. 8, 9, 10), Morley (p. 355) writes that "Spinden may be correct in assigning the . . . three to Lintel 1 of Temple II." It will be recalled, however, that Spinden assigned all the beams in Figs. 6 through 10 to that lintel.

Morley accepts Maler's evidence for Temple II being the source of the fragmentary beams shown in our Fig. 17b, c; he also accepts Maler's precise attribution of the larger beam as Lintel 2.

One important point of confusion occurs in Morley's Pl. 73a which associates with the caption "Structure 10," the beams known to be from this structure with the larger beam found by Maler in Temple II and later salvaged by Spinden (Fig. 17c). The error in the plate caption evidently perpetuates the same misinformation encountered in the catalogue of the American Museum of Natural History (information from Gordon F. Ekholm).

In short, Morley, for all the excellence of his summary of prior studies, contributed heavily to what, with advantageous hindsight, we may say had become an awesome muddle. The incorrectness of his assignments was due in part to the assumption that outside lintels, no longer present, were "probably" carved (see his Table 13). He followed Spinden in failing to give warranted consideration to Maudslay's observation of Lintel 1 of Temple II as plain. Morley (p. 349) writes: "It is assumed that [these now missing outside lintels] were carved . . . otherwise they would hardly have been carried off." Finally, a source of more serious error was his epigraphically and stylistically motivated division of Maudslay's Pls. 71 and 72.

5. *BEYER'S ASSIGNMENTS AND OBSERVATIONS*

Beyer (1943) made a valuable contribution in demonstrating that Morley's grouping of the beams in Figs. 6, 7, 2, 3, and 4 was unjustified, if only because the glyphs on the beams in Figs. 6 and 7 were considerably larger than those on the beams in Figs. 3 and 4 and, furthermore, the two sets of glyphs were stylistically different. Beyer held that the text shown in Figs. 6 and 7 (see also Fig. 22a, b) closely related in style to the text on the lintel in Fig. 29, and, since the latter lintel unquestionably belonged in Temple IV (Lintel 3), the lintel in Maudslay's Pl. 72 (our Figs. 6–10; see also Fig. 22) should also have

come from this same structure.

Beyer also correctly related the beam fragment in Fig. 5 (which Morley allowed as a fragment of Lintel 2, Temple IV) to that in Fig. 3 by a comparison with a drawing (Fig. 21a) by Lara made in 1848. Since, as Beyer held, it was unlikely that this early expedition visited Temple IV, the drawing had to be made from a lintel then extant in Temples III, II, or I. Thus there is additional reason to distrust Morley's division and regrouping of Maudslay's basic arrangements.

ASSIGNMENTS ON THE BASIS OF RECENT WORK

Tables 1 and 2

Work relating to lintels in 1957 involved the complete clearing of the rooms of Temples I and IV, the clearing of the rear room of Temple III, the recording of Lintel 2 of Temple III and Lintel 2 of Temple I, and measurements and observations of all doorways and associated lintels in Temples I through IV. In 1958, Richard E. Adams cleared the debris from the rooms of Temple II; this work was in part directed to recovering any surviving fragments of wood carving; this aspect however was without results. In 1959, Aubrey S. Trik remeasured the lintel areas of Temple I in preparation for the installation of lintel replicas as well as for reconstruction of associated walls and vault soffits. In the course of this work, it was discovered that Lintel 3 had been set with a cached offering at either end; largely of marine origin, these offerings are fully described as Cache 49 in Tikal Report No. 13. Additional data on mat and cord impressions in the mortar above the fallen vaults were recorded. All pertinent structures were visited in 1959 to secure wood samples for radiocarbon analysis; in the course of this work Trik secured valuable cross-sections of various lintel beams. Finally, in 1959, the writer gathered all available data on the original location of the carved lintel from Structure 10 (Figs. 36, 37).

1. MATCHING OF LINTEL FRAGMENTS

Excavation of floor debris provided a source of information, unavailable to Morley, in the form of large quantities of zapote wood fragments, a small but important number of which were carved. These splinters and chips resulted from trimming work following the removal of the lintels as well as from relatively recent mutilation. Many fragments were charred; others had been sharpened into wedges, presumably to help split the carved surfaces from the heavy excess bulk of the beams. In all, sixty-eight fragments showing carving were recovered. Our task was to match these fragments to photographs of the Basel and London beams and eventually to certain epoxy resin casts which were taken to Tikal in 1958.

The following list, by structures which provided the fragments, summarizes the successful fits *to date*:

TEMPLE I	Fragment in Fig. 11*a* fits nose of jaguar in Fig. 11*f* (see also Fig. 2).
	Fragment in Fig. 11*b* fits collar of dwarf figure in Fig. 5.
	Fragments in Fig. 11*c*, *d* (other comparable specimens not shown) stylistically relate to banded frieze at base of beam in Fig. 3.
	Fragment shown in Fig. 11*g* fitting area of hands of manikin figure on scepter which occurs on beam shown in Fig. 3.
	Fragment (not illustrated) fitting break in upper curved projection from jaguar nose in Fig. 2.

TEMPLE IV Fragment in Fig. 11e fits in lower right corner of lintel in Fig. 29, against lashed cross-beam (detailed view in Fig. 35).

It is highly improbable that beams or fragments thereof have been transported from temple to temple. Consequently there is every reason to attribute the beams shown in Figs. 2, 3, and 5 to Temple I, and the well preserved lintel in Basel (Fig. 29) to Temple IV. This latter conclusion is of course in agreement with the conclusions of Morley and others (see Table 1). However, Morley's assignment to the second doorway of Temple IV of the beams in Figs. 2, 3, and 5 must be ruled out in light of this new evidence.

2. *PROBLEM OF OUTER DOORWAYS*

Although the preceding associations do narrow possibilities, specific assignment to doorways is still needed. If it can be shown that all outer doorways in this sample of structures were invariably plain, the range of possibilities is decidedly reduced. Morley as already noted (p. 28), held to the belief that outside lintels, now missing, were in fact carved.

Among the four major temples known to have had carved lintels, plain outside lintels survive in Temples I and IV. Maudslay (1889–1902, Vol. III, Pl. 69) recorded Lintel 1, Temple II as a "plain lintel"; published and unpublished Maudslay photographs (University Museum, print file) indicate that this lintel had not fallen at the time of his visit, though the whole doorway had by Maler's time. Excavation of the rooms of Temple II in 1958 provided no evidence one way or the other as to whether this lintel was plain or carved. All in all, it seems likely that Lintel 1 was for some reason removed between the visits of Maler and Maudslay.

The outer lintel of Temple III is totally missing, having fallen or having been removed prior to Maudslay's visit. Our excavation here was restricted to the rear room. Consequently, information is lacking on possible remains of Lintel 1 beneath the great pile of masonry and rubble blocking the outer room. The fact remains, however, that the very size of the doorway (see Table 2) excludes it as a possibility in assigning beams of unknown provenience; this point was emphasized by Morley (1937–1938, Vol. 1, pp. 351, 353). Only the rotten north ends of Beams e and f were found in place. This fact would tend to indicate natural decay and collapse rather than deliberate removal of the lintel. Yet deep machete scars are to be seen on the exterior masonry close to where the south end of the total lintel rested. These marks may be interpreted as supporting a case for deliberate removal. On the other hand they may be due to attempts to free the still surviving butt portions of a lintel already fallen between the door jambs and buried by the collapse of the associated overhead masonry. Such butts may have been valued as firewood by visiting chicleros and others during the wet season. These butts may also have been removed to provide blanks for wedges and prybars. We are thinking here of the possiblity that Lintel 2 of this temple was scheduled to be removed; Beam *a* is missing. But realization of its size and poor condition may have changed the minds of the depredators. Finally, the machete cuts in the masonry may have been made by visitors to provide a foothold in ascending to the roof comb. In 1960, the area was carefully inspected and on the whole it seems doubtful that the cutting of the masonry could have related to the deliberate removal of the lintel, if in fact, it was removed.

The fact that two extant outside lintels are plain, together with Maudslay's notation

that Lintel 1 of Temple II was plain, forms a substantial case for all outside lintels in our temple sample having been plain. The plainness of the single (and therefore outer) lintel of Temple V tends to confirm this conclusion, as does the fact that lintel details recorded on the Mendez expedition can all be attributed to inside lintels.

3. PROBLEM OF LINTEL ORIENTATION

In reconstruction of missing carved lintels, it is necessary to take into account the orientation of the design panel in relation to the front-rear axis of the structure. Our conclusion is that the principal or principals of a carved scene face the structure exit. In a temple facing east, the gods, priests, and animals depicted on the lintels similarly face east. Immediate evidence for this conclusion is to be found on Lintel 2 of Temple I (Fig. 12; the structure and seated figure face west) and on Lintel 2 of Temple III (Figs. 18, 19; the structure faces east; note that the central figure correspondingly faces east). Other confirmatory evidence in this regard is brought forward in the statement of final lintel assignments (pp. 38, 39).

4. ASSOCIATIONS OF BEAMS NO LONGER IN POSITION

The relationship of the beams in Figs. 2, 3, and 4 is obvious and has never been questioned in print. These three beams belong together. Furthermore, on the basis of evidence given in our discussion of excavated fragments (p. 29), these beams must come from Temple I.

Inasmuch as the fragment in Fig. 5 is also known to be from Temple I (see Fig. 11b), its position in Maudslay's Pl. 71 (our Figs. 1–5) might be correct; Maudslay recorded its position as "uncertain."

We can find no basis for relating the beam in Fig. 1 to that in Fig. 2. Morley (1937–1938, Vol. 1, pp. 353, 354) is of the same opinion. Evidence for assigning it to Lintel 2 of Temple IV is presented on pp. 37 and 38.

The beams in Figs. 6–10 cannot be placed in any single temple by matching of excavated carved fragments. Attempts at matching via photographs have been unsuccessful and there has been no chance to match fragments to casts of the actual beams. As to the beams themselves, Fig. 6 clearly belongs with Fig. 7. Study of Maudslay's plates as well as of the actual beams and new photographs convinces us that Figs. 8 and 9 belong together. A conceivable error in Maudslay's arrangement, as noted by Morley (*ibid.*,pp. 352, 353), occurs between Figs. 7 and 8 as well as between Figs. 9 and 10. Nevertheless, careful restudy confirms Maudslay's layout of the beams. Our conclusion is that the beams in Figs. 6–10 do belong in that order. At least one beam is missing, to the observer's right of the beam in Fig. 10.

In summary, the arrangements of beams by Maudslay in his Pls. 71 and 72 are considered to be essentially correct, with the possible exception of the fragment in our Fig. 5 and almost certainly the beam in Fig. 1.

The great lintel in Basel (Fig. 29) offers no problem of beam arrangement. As previously mentioned, the fitting of a carved fragment (Fig. 11e) excavated from floor debris of Temple IV corroborates the long held general assignment of this lintel to that temple.

Pertinent material not in Europe includes, first, the two beams originally shown by

Maler and found in Temple II (see our Fig. 17b, c), and, second, a partial beam still at Tikal, found on the floor of Temple I (true position reconstructed in Fig. 13e). The two Temple II beams align on the basis of continuity seen in the necklace featuring three symmetrically placed full face human heads, and of the continuity from beam to beam of feather work, transverse pectoral ornament, and so forth.

The incomplete lintel in Figs. 36, 37 is well documented as being from Structure 10 and there is every reason to associate the two surviving beams.

The problem of assignments has been reduced as follows:

Figs. 2–4	Belong together, stem from Temple I, and must come from either Doorway 2 or Doorway 3.
Fig. 5	Stems from Temple I and must come from either Doorway 2 or Doorway 3.
Fig. 13 e	Found in Temple I and must come from either Doorway 2 or Doorway 3.
Fig. 1	Temple assignment problematical.
Figs. 6–10	Belong together but temple assignment problematical.
Figs. 17 b, c	Belong together, stem from Temple II, presumably Doorway 2.
Fig. 29	A nearly complete lintel, from Temple IV, must come from either Doorway 2 or Doorway 3.
Figs. 36, 37	Belong together, stem from Structure 10, "third story," inner central doorway.

5. *FINAL ASSIGNMENTS*

A. TEMPLE I

(Structure 5D-1). Oriented to west. Three doorways, one behind the other.

1. *Lintel 1.* Plain. Two beams. Beam *b* in position while a portion of Beam *a* has fallen. Lintel erroneously described by Maudslay as carved. Maler correctly recorded two beams while Morley incorrectly noted three beams.

2. *Lintel 2.* Carved. Originally four beams. Beams *a* and *b* still in position (Fig. 12). Whereabouts of Beams *c* and *d* are unknown. Situation today confirms Maudslay's observations in 1881 or 1882 (Table 1).

3. *Lintel 3.* No beam is in position and the overhead soffits have fallen. Absence of intact butt impressions in the plaster precludes field estimates of number of beams and of their widths. Maler however gives a figure of five beams, indicating that the masonry had not fallen at the time of his visit (Table 1). Other considerations confirm his observation (see discussion below). Lintel 3 is restored in Fig. 13 and shown in detail in Figs. 14–16.

Discussion. Excavated fragments from Temple I definitely place, as previously mentioned, those beams in Figs. 2, 3, 4, and 5 in this temple. Those in Figs. 2, 3, and 4 are unquestionably adjacent beams. These three beams cannot comprise the missing portion of Lintel 2 since three distinct beams are available while Lintel 2 requires restoration of only two. Also, the pictorial content of the two lintels is dissimilar. Additionally, the combined widths of the beams in Figs. 2–4, 0.795 m. (see Table 2 , Temple I, Lintel 3, Beams *a–c*; also Fig. 13a–c) exceeds the space permitted them above this second doorway (i. e., 0.54 m.; see Table 2, Lintel 2, Beams c, *d*). And, assuming that the jaguar and

seated personage in Figs. 2 and 3 faced west when originally positioned (see p. 31), duplicate sets of corners would result if forced as the missing portion of Lintel 2.

It is not only evident then that the beams in Figs. 2, 3, and 4 do belong together but collectively they must comprise a substantial part of Lintel 3 of Temple I. The fragment in Fig. 4 is from an outside beam since a portion of the expectable plain border (see p. 24) is present. The piece in Fig. 5, while proved to be from this structure (see p. 29) should also be a part of Lintel 3 on the following grounds: (a) it is the lower right hand corner of a design panel and thus cannot be from Lintel 2 which is intact in this respect; (b) it approximately agrees in width with the fragment of Lintel 3 in Fig. 4; (c) if from Lintel 3, no contradiction of composition occurs; and (d) Lara, on Mendez' visit, copied a scene showing a seated personage in front of whom a small cloaked figure stands, facing to the left (Fig. 21a). This final bit of evidence is conclusive inasmuch as the scene is unknown at Tikal except in the arrangement produced by the combination of those beams in Figs. 2, 3, *and* 5. As Beyer (1943, p. 341) showed, there are remarkable resemblances between Lara's dwarf-like figure and that in Fig. 5 (cf. Figs. 13a and Fig. 21a). Lara's drawing is also of potential value in reconstructing certain gross details subsequently lost in removing and cutting down the lintel. For the reasons stated, the fragment in Fig. 5 is considered to be the lower right hand corner of the design panel of Lintel 3 as well as the lower carved part of the first or outside beam, of which the fragment in Fig. 4 is the upper portion. And since it is highly probable that the orientation of Lintel 3 agreed with that of Lintel 2, the following would be true: Fragments in Figs. 4 and 5 comprise incomplete Beam *a* (Fig. 13a) while those in Figs. 3 and 2, are Beams *b* and *c* respectively (Fig. 13b, c). The question now is whether measurements allow these otherwise plausible conclusions.

1.90 m.	Width of Doorway 3.
−.10 m.	Estimated allowance for north and south panel edges (see p. 24).
1.80 m.	Estimated carved panel height.

A lintel with a carved panel height of about 1.80 m. and certainly not more that 1.90 m. is called for. Measurement of the incomplete, actual beam in Fig. 3 (Fig. 13b) gives 1.71 m. excluding the plain area above the upper limit of carving. Since all beams are incomplete, this approach is relatively inconclusive. A second approach, that of comparing actual beam widths with width of beam impression in the mortar is thwarted by the loss of those impressions (which Maler evidently saw).

The necessary proof of the compatibility of doorway and lintel measurements is to be found in a beam, now fragmentary, found on the floor of Room 1 of this temple in 1957. The surviving fragment is shown in Fig. 13e in what should be its proper position. This fragment shows a badly mutilated panel corner with traces of a horizontal frieze of crossed bands. The corner is so composed as to preclude the fragment being from Lintel 2 (cf. Fig. 12), nor for the same reason can it be from what should be the outer beam (Beam *a*) of Lintel 3 (cf. Fig. 13a). Since it shows a corner, it must be the innermost of the beams comprising Lintel 3. The frieze motif is consistent with that seen on Beam *b* (Fig. 13*b*). Returning to the problem of doorway width and panel height, we are fortunate in having Morley's record of a then intact beam found by him in 1914 in Temple I, which showed a panel height of "between 1.82 and 1.83 m." and an overall length of 3.93 m. (Morley, 1937–1938; Vol. 1, p. 349, footnote 520). Morley concluded that this must have been either the outer or inner beam of Lintel 3. Its length agrees with the space allowed the lintel in Doorway 3 (3.96 m.; see Table 2). This beam can only have been the whole of which a fragment was

found in the course of our work (Fig. 13e). This fragment is 1.83 m. long, of which the butt occupies 1.03 m. If the butt dimension is doubled and Morley's figure for panel height is added, the result, 3.88 or 3.89 essentially agrees with Morley's measurement of the whole beam (i. e., 3.93 m.). The beam was 0.185 m. wide (intact) and 0.21 m. thick (intact). The beam must have been chopped in half since 1914. The panel height has been listed in Table 2 as 1.825 m. This figure vertically positions the lower portion of Beam *a* within the whole beam (Fig. 13*a*). Still to be determined are the number of beams in Lintel 3 and their total width. Lintel width may be estimated as follows (see p. 24 "lintel width" and Table 2):

1.45 m.	Doorway 3 thickness
−0.16 m.	Combined average of insets of Lintels 1 and 2
1.29 m.	Estimated lintel width
−0.975 m.	Combined widths of four known Lintel 3 beams (Figs. 13*a*, *b*, *c*, *e*)
0.315 m.	Estimated portion of lintel width to be accounted for

Since the four known Lintel 3 beams are essentially intact in their widths, this figure, 0.315 m., is roughly the width of one or more missing beams falling between Beam c and the innermost one, just described. It will be recalled (p. 26) that Maler found evidence, necessarily in the plaster, of five beams in Lintel 3. Beams *b* and c are 0.285 and 0.33 m. wide respectively; the figure, 0.315 m. as the width of a single beam therefore is not excessive. Consequently, the lintel is reconstructed (Fig. 13) as having had five beams. A fragmentary beam found on the temple floor is thus Beam e; Beam *d* is missing; and Beams *a*, *b* and c have already been correctly positioned.

On the basis of the preceding data and especially on Morley's measurement of panel height of what has been determined to have been Beam e, Lintel 3 is reconstructed in Fig. 13. Our calculated total lintel width, 1.29 m. (see above), is there corrected to 1.34 m., the width of the missing Beam *d* is revised to 0.34 m., while the carved panel width results as 1.26 m. (see also Table 2). Panel height was 1.825 m. About 4 cm. of plain area occurred between the design panel top edge and the jamb wall and the same amount between the panel bottom and its associated wall. Thickness of the beams is estimated as between 0.20 and 0.22 m. Substantial portions of all beams except *d* survive. What remains of Beam *a* is in the British Museum; Beams *b* and c are in the Museum für Völkerkunde, Basel, and the surviving portion of Beam e is in Tikal.

In summary, Temple I had three lintels—a partly collapsed outer lintel, a central carved lintel for which we have no record of Beams c and *d*, and a rear carved lintel of five beams, four of which can be substantially accounted for while Beam *d* has totally disappeared. Examination of the two carved lintels indicates a fundamental similarity, the major difference being that Lintel 2 is dominated by stylized serpents while the jaguar is the major element in Lintel 3.

B. TEMPLE II

(Structure 5D-2). Oriented to east. Three doorways, one behind the other.

1. *Lintel 1.* Fallen (or possibly removed) with no recovered evidence. Lintel believed to be plain on evidence that outside lintels were as a rule plain (see p. 30) and the fact that past assignments of various carved beams to Lintel 1 now seem insupportable. Impressions in butt sockets indicate five beams. Former position of lintel shown by Shook (1951, Fig. 11).

2. *Lintel 2.* Carved (Fig. 17); information available on only two of the original five beams. Larger beam fragment (Fig. 17c) survives in American Museum of Natural History

where it was taken in 1914 by Spinden. According to Morley (1937–1938, Vol. 1, p. 349), the smaller fragment (Fig. 17b) had been lost prior to 1914. Both were first discovered and illustrated by Maler (1911, Pl. 18, 2) as from Temple II, lying in the debris (*ibid.*, p. 30). Maudslay captioned this second doorway in his plan as "carved lintel much destroyed," a statement that would indicate that the lintel was ripped out following his visit but prior to Maler's. Through study of plaster impressions of the beams in the masonry, the lintel is known to have been composed of five beams of differing widths (full data in Table 2). Since no trace of a plain border appears on the two fragmentary carved beams, it follows that they must have been interior beams (that is, not Beams *a* or e in a five-beam lintel). Our conclusion (see below) is that they most probably represent Beams *b* and c (see Fig. 17 b, c).

3. *Lintel 3.* Plain and in position. Illustrated by Shook (*ibid.*, Fig. 10). Six beams of roughly the same widths. Full data in Table 2.

Discussion. As indicated in Table 1 and discussed in a prior section (p. 27), the first doorway of this temple was believed by Spinden to have carried the beams in Figs. 6–10. Morley held that the Fig. 17c beam belonged to Lintel 2 while that in Fig. 17b might have been from either Lintel 2 or Lintel 1 (1937–1938, Vol. 1, pp. 354, 355). Those beams in Figs. 8, 9, and 10 were treated by Morley as the bulk of Lintel 1 which he believed to have been carved.

As has been emphasized previously, we see no reason to distrust Maudslay's recorded observation of Lintel 1 as plain (see p. 25; note, however, that Maudslay incorrectly shows in section four beams rather than five, in his Pl. 69, "Temple B") and, moreover, find no reason to divide, as Morley did, the arrangement in Maudslay's Pl. 72 (our Figs. 6–10). Despite Spinden's assertions to the contrary (1913, p. 257) there is also considerable room for doubt that all or a portion of the beams in Figs. 6–10 could fit across the first doorway of Temple II. Morley (*op. cit.*, p. 352) reached this same conclusion.

The outer or first doorway of Temple II has a maximum thickness of 1.34 m. (see Table 2). The east and west insets have a total depth of 0.17 m. Subtracting, we arrive at 1.17 m. as the width of Lintel 1, composed of five beams. The only surviving measurable impression was that of Beam e, showing a width of 0.23 m.

Measurements in Basel yielded the following extant maximum widths for the beams in Figs. 8, 9, and 10: 0.34, 0.37, and 0.32 m. respectively. The combined width of the beams in Figs. 6 and 7 is 0.49 m. The first three measurements total 1.01 m; the total of the five widths is 1.52 m. (Morley, *ibid.*, p. 352 gives the identical result.) Inasmuch as the doorway width is only 1.34 m., quite clearly these five beams, as Spinden contended and Morley contested, could not have belonged here.

Turning now to Morley's assignment to this doorway of *only* those beams in Figs. 8, 9, and 10, their total width of 1.03 m. should be added to that of the width of the cast of Beam e, 0.23 m., on the grounds that Beam e is too narrow (see above) to have been one of those in the aforementioned figures. The result, 1.26 m., exceeds by 0.11 m. the reasonable estimate of lintel width, 1.17 m. Of course, the true discrepancy is far greater since the calculation takes into account four beams rather the five (indicated by casts in the masonry) which constituted the lintel. Consequently none of the carved beams known can belong to Lintel 1 which is therefore considered to have been plain.

Lintel 2 of Temple II, now missing at the site but originally made up of five beams, must have carried the two fragmentary beams shown in the schematic arrangement in Fig. 17.

Only this doorway is available. They must be portions of two of the following beams: Beams *b*, *c*, and *d*.

Both Maler and Morley tended to doubt that the two carved beams were contiguous and, in fact, Morley suggested that they might belong to different lintels (*ibid.*, p. 349). However, careful study of Maler's Pl. 18, 2 shows too great a relationship between these two beams to be coincidental. That the two belong side by side is indicated by the alignment of both shoulders, the continuity of the elaborate three-head necklace and the transverse bar-pectoral ornament, as well as the continuity of headdress and feather elements. In short, there are good reasons to associate the two. They must in this case be fragments of either Beams *b* and *c* or Beams *c* and *d*.

Spinden (1957, Pl. L, *b*) gives an evidently recent drawing of the two Lintel 2 beams. This must have been made from Maler's illustration. The drawing involves considerable unindicated restoration which nevertheless seems reasonable.

The orientation of the two related beams is guided by the face on the smaller fragment which, in profile, looks to the observer's left. The temple opens to the east. Since lintel and temple orientation coincide as a rule at Tikal (see p. 31), it follows that the smaller fragment, with the face, is the outer of the two; it thus can be only Beam *b* or Beam *c*.

Field measurements of plaster impressions (Table 2) indicate Beam *b* to have been about 0.23 m. wide, Beam *c* 0.25 m., and Beam *d* 0.31 m. The almost complete beam (positioned in Fig. 14 c) is 0.234 m. wide with no evidence of exceptional peripheral rot; scaling indicates that the now lost smaller fragment was about 0.21 m. wide. Comparison with the sequence of field measurements indicates that the two beams should have occupied positions *b* and *c*, Beam *b* being the smaller of the two, falling to the observer's left, and Beam *c* the nearly complete beam, to the observer's right.

C. TEMPLE III

(Structure 5D-3). Oriented to east. Two doorways, one behind the other.

1. *Lintel 1*. Lintel missing, having either collapsed or possibly been removed. Not in position at time of Maudslay's visit. Surviving plaster impressions indicate six beams. Widest doorway of series, measuring 3.93 m. (Morley, 1937–1938, Vol. 1, Table 13 gives 3.83 m.). Spanned by beams 6.09 m. long. For reasons already given (p. 31), it seems highly probable that this outside doorway was spanned by a plain lintel. As often pointed out by others, none of the assigned carved beams is of sufficient length to have spanned this doorway.

2. *Lintel 2*. Carved. Originally ten beams, all of which are in place with the exceptionof Beam *a* which has disappeared. Lintel illustrated in Figs. 18–20.

Discussion. The missing beam of Lintel 2 should have carried Columns A and B of a text comprising 19 glyphs to a column which was continued on the innermost beam, Beam *j* (with Columns C and D). The probable total of 72 glyphs thus exceeds in length the other surviving texts on Tikal lintels.

Whether or not Beam *a* was deliberately removed is difficult to say. The east edge of Beam *b* has severely decayed, suggesting total loss through decay of Beam *a*. No axe or machete scars were seen in the associated masonry. The beam was missing by 1895 (Maler, 1911, p. 37).

Our line drawing, essentially a plan, of this lintel, in Fig. 18, should be qualified. Extant separations between beams, measuring a total of 0.095 m. along the bottom of the carved panel, have been ignored. The lintel width along the bottom or south edge of the carved

panel has been drawn so that with the addition of 0.095 m. and with bisymmetrical restoration of Beam *a*, the total width would be 2.171 m. Two independent field estimates of the width of Beam *a* were 0.23 m. and 0.24 m.; our drawing shows it as 0.252 m. Field measurements along the north side, on two separate occasions, gave a figure which when coupled with a 0.23 m. width for Beam *a* yielded about 2.16 m. for the lintel width (Table 2). The fact is that the lintel is wider by 0.035 m. along the south than the north side. In our drawing just the opposite has emerged. This relatively minor distortion can be attributed to the fact that a great many photographic negatives, none of which were made at a controlled right angle to the subject, were used to build up a guide mosaic for the drawing. To have attempted to correct this horizontal distortion would have required too great an adjustment throughout.

The height of the carved panel was measured down the center and read 2.03 m. (Table 2). Another measurement taken near one side gave 2.04 m. Panel width is reconstructed as 2.07 m.; if the east glyphic column (Beam *a*) was equal in width to that to the west, it follows that the plain east and west borders were of unequal width.

Lintel 2 has been described in some detail in a recent publication (Coe, 1958). Lara, who sketched various Tikal sculptures during the Mendez expedition in 1848, appears to have copied imaginatively the central figure of this lintel and the left hand one as well (Fig. 21b; see also, Beyer, 1939, p. 342). A drawing showing the central figure was made by Blom in 1924 (in Follett, 1932, Fig. 31).

According to Maler (1911, p. 37) the lintel was seriously mutilated between his visits in 1895 and 1904. Yet, as early as 1881 the condition of the lintel was evidently poor, for Maudslay, in his temple plan, notes "carved beams much destroyed." Various fragments of carving from the lintel were recovered from the surface of the floor debris while clearing the rear room of the temple. None were successfully fitted.

D. TEMPLE IV

(Structure 5C-4). Oriented to the east. Three doorways, one behind the other.

1. *Lintel 1.* Plain, in position, complete. Composed of six beams. Dimensions given in Table 2.

2. *Lintel 2.* Missing at the site. Because of excellent impressions in masonry, this lintel is known to have been composed of six beams. On the basis of data given below, the lintel is reconstructed as follows:

Beam *a*: Fig. 22 a and Fig. 6.
Beam *b*: Fig. 22 b and Fig. 7.
Beam *c*: Fig. 22 c and Fig. 8.
Beam *d*: Fig. 22 d and Fig. 9.
Beam *e*: Fig. 22 e and Fig. 10.
Beam *f*: Fig. 22 f and Fig. 1.

Lintel details are shown in Figs. 23–28.

3. *Lintel 3.* Missing at the site. There is complete agreement that the lintel shown in Fig. 29 (details in Figs. 30–35), however, belongs across Doorway 3. The little that can be added to the evidence given by Morley and others is stated in the following discussion.

Discussion. Beams yet unassigned are shown in Figs. 6 through 10 and in Fig. 1.

By a process of elimination these beams are obvious candidates for the second doorway of Temple IV. It should be noted that no excavated carved fragment has as yet been fitted to any of these beams. Consequently they can be assigned to Temple IV and the available second doorway only on the basis of measurements, interrelationship of the beams themselves, and compatibility with surviving impressions in the masonry.

In prior discussion (p. 31) it was stated that Maudslay's arrangement of the beams (as in Figs. 6–10) was correct. But, as have others, we doubted his placement of the beam in Fig. 1 alongside the beam in Fig. 2. The problem now is to determine whether the six beams still unaccounted for do not actually comprise Lintel 2 of Temple IV which calls for six beams.

Careful study in Basel of the actual beams in question showed that limited continuity occurred between the beams in Fig. 1 and Fig. 10 (see details, lower right, Fig. 28) if the Fig. 1 beam was inverted from the position given it by Maudslay. This beam falls to the right of the beam in Fig. 10 (as in Fig. 28).

Careful alignment of the beams in Figs. 8 and 9 produces a carved panel height of 2.16 m. (Table 2). Doorway 2 of Temple IV is 2.18 m. wide (Table 2). Width of doorway and panel height are thus compatible, permitting however only a very narrow plain area at the top and bottom of the panel before meeting the jambs.

Other factors to be considered are the widths of the beam impressions and their concordance with the widths of the beams in Figs. 6–10 and Fig. 1. A summary of dimensions (in meters) follows:

Beams	Figures	Impression widths	Beam widths (unadjusted)
a	6	0.34 m.	0.215 m.
b	7	0.29 m.	0.25 m.
c	8	0.46 m.	0.34 m.
d	9	0.39 m.	0.37 m.
e	10	0.32 m.	0.32 m.
f	1	0.39 m.	0.16 m.

Although "beam widths" do not agree precisely with the "impression widths" because of rot and other reduction (see illustrations), there is significant agreement between the two series of measurements. Additional confirmation is the exact agreement between the width of the beam in Fig. 10 and the anticipated width from the beam impression. Inversion of either one of the series destroys concordance.

Conclusions respecting this lintel are diagrammed in Fig. 22. From beam impressions it is known that the width of the lintel along the north side was about 2.20 m. (Table 2). Guided by the width of the beam impressions, the lintel components are positioned. A border on the east side of 0.17 m. is called for. Bilateral symmetry would allow a plain west border of postulated equal width. A carved panel width of 1.86 m. results. Beam *f* which survives as the fragment in Fig. 1 (when inverted), emerges in this reconstruction as having been originally 0.39 m. wide.

Lintel 2 then comprises six beams: Figs. 6, 7, 8, 9, 10, and 1 (inverted), in this order and from left to right. The particular order has of course been necessitated by the sequence of correlated component beam widths and impressions, and, in our opinion, has correctly oriented the lintel so that the depicted individuals do look to the east in agreement with the orientation of the temple. The assignment of these beams here is in accord with Beyer's opinion as to the stylistic relationships in hieroglyphs between Lintel 2 and what is assuredly Lintel 3 (see pp. 28–29).

Turning to Lintel 3, all prior studies, with the exception of Maudslay (see Table 1),

agree that the third doorway of Temple IV must have been the source of the lintel in Fig. 29, Morley (1937–1938, Vol. 1, pp. 251–252) presents the basic data underlying this unquestioned provenience. The finding of the fragment shown in Fig. 11e in the debris of Temple IV is excellent confirmation of gross provenience (see p. 30). Briefly, the lintel is composed of seven beams, and only a single doorway (the third of Temple IV), conforms in the number of impressions in the masonry. Doorway width and thickness correspond well with actual lintel width and panel height when plain areas above and below the design panel as well as insetting of outer and inner beams are considered (see Table 2).

Apparently the only remaining problem concerning Lintel 3 is its orientation when in place. The seated individual in the panel center faces to the left side of the panel. In view of the data assembled on other lintels, including that for Lintel 2 in this temple (see p. 31), one would expect the left side of the panel to have been set to the east with the panel bottom to the south. Reasonable proof that this was the case occurs in the following correlation of impression width and beam width sequences: the first column of figures, to the left, gives impression widths (in meters) taken along the south end of the lintel support area, from center to center of the plaster stubs between the former beams; the second column records in the same order the measurements taken at the north end of the area formerly occupied by the beams and across each separate impression, excluding the plaster septa between beams; the right hand column tabulates existing widths of the Basel beams, derived from actual measurements not corrected for loss through rot, etc.

Beams	Impression widths		Beam widths (unadjusted)
a	0.38 m.	0.28 m.	0.29 m.
b	0.28 m.	0.31 m.	0.28 m.
c	0.29 m.	0.28 m.	0.29 m.
d	0.28 m.	0.30 m.	0.315 m.
e	0.23 m.	0.18 m.	0.27 m.
f	0.43 m	0.38 m.	0.39 m.
g	0.28 m.	0.26 m.	0.27 m.

General agreement is seen throughout, particularly when it is realized that the widths of the actual beams have been reduced by various factors (rot, hacking, etc.). The relative agreement within the total sequence of the data for position *f* is particularly noteworthy. The arrangement of the series in this order (and no other) tends to corroborate the otherwise apparent rule that the orientation of the principal individual (here in the face) agrees with that of the structure itself. The lintel must have been so positioned that the bottom of the design panel was to the south.

Plotting the beams in terms of the surviving evidence at Tikal yields a lintel with a total width of 2.20 m., a carved panel width of 2.05 m. and a carved panel height of 1.756 m. Careful arrangement of the beams in Basel showed that the seated personage's left heel falls 1.00 m. from the left panel edge (i. e., east edge) while the right heel falls 1.01 m. from the right panel edge.

In conclusion, we should like to note what is probably obvious, simply that the general arrangement or theme of Lintel 2 (Fig. 22) is strikingly like that seen on Lintels 2 and 3 of Temple I (Figs. 12, 13). Again, a giant figure is shown, subordinating a seated priest-like individual; here the giant figure is human but with the jaguar ear and the number 7 and a loop under the eyes, all attributes pointing to an identification as the "god of number 7" and a jaguar god of the underworld (see Thompson, 1950, p. 134, Fig. 12, 13). If the motif of Lintel 2 is jaguar or feline, that of Lintel 3 is the serpent, actually feathered. This

contrast is duplicated in the two carved lintels of Temple I.

E. STRUCTURE 10 (STRUCTURE 5D-52).

Oriented to the south. A multi-roomed "palace" type building (see Appendix, p. 74). Only the inner of the two central doorways of the "third" story is as yet known to have been spanned by a carved lintel. All evidence indicates that the two beams shown in Fig. 36 c, d (also Fig. 37 b) formed the medial portion of this five-beam lintel.

Discussion. The first mention of this lintel was by Maler (1911, pp. 16–17) who believed that it was originally composed of five "beautifully decorated" zapote beams. Two of them ("of course the best preserved ones") had been carried away prior to his 1904 visit, reputedly by three individuals from Flores.

Morley (1937–38, Vol. 1, pp. 341–42) studied the surviving beams in position in 1914. He states that there were three beams present out of the original five, confirming Maler's statement. All three are said to have been removed at that time; these were deposited in the American Museum of Natural History by Spinden, who accompanied Morley on this visit to Tikal.

There are good indications that Morley mistook a beam (see our Fig. 17 c), well documented by Maler as from Temple II, as one of the supposed three removed from Structure 10 in 1914. Morley's Pl. 73 a shows, on the right, two joined beams definitely from Structure 10, and, on the left, a single carved beam. These are the three beams deposited in New York by Spinden in 1914. The single beam was seen that year by Morley in Temple II (see his Table 13). Further evidence of at least consistent confusion in this regard is contained in Morley's Footnote 509 in which he gives the American Museum of Natural History catalogue numbers of the Structure 10 specimens. The final number is that of the Temple II beam, which, as previously noted (p. 28) had been erroneously catalogued as from "Structure 10." This correction of an understandable error on Morley's part is pertinent to the problem of exactly how many beams made up this Structure 10 lintel.

On investigating this doorway, we found it badly fallen and the entrance almost closed by debris. In the chamber, an apparently complete lintel beam with no signs of carving was found lying on the debris. About it were seven variably preserved lintel butts. Measurements are summarized in Table 2. The doorway opens to the south and is 1.78 m. wide. Slight excavation was required to locate the south face of the intermediate wall between the intact rear room and the wholly collapsed front room. Enough was excavated to expose the line of the jambs and the areas which had supported the lintel butts. The portion of the lintel taken to New York had been previously studied and found to comprise no more than two beams which had been joined for easy handling. Due to rot, their fit is poor but completely convincing. The outside edges also show signs of rot. They present a carved panel height of 1.76 m. Together the two beams show a maximum width of 0.68 m., with the left beam (Fig. 20 c) 0.39 m. wide, and the right beam (Fig. 20 d) 0.29 m. wide.

Discovery of the apparently complete beam (length, 3.08 m., width 0.22 m., and thickness 0.18–0.19 m.) just north of the doorway and lying on the debris near the north chamber wall, presents various puzzles. First, there is not a trace of carving on this beam though decay gives it a potentially deceptive appearance. The beam must come from this doorway as its preserved length, 3.08 m., is consonant with the total lintel length determined by socket-to-socket measurement. Secondly, both Maler and Morley claim five beams for this lintel; two were said to have been removed by people from Flores, while Spinden is said to have

removed the other three. Yet only two (carved) are in New York and a third (plain) is still within the structure.

The west door jamb measures 1.47 m. wide, and the east one 1.45 m. Each inset measures 0.06 m., giving a total of 0.12 m. Calculating in terms of the west jamb, we arrive at 1.35 m. as the width of this lintel.

Seven pieces of zapote wood were found in the chamber in addition to the evidently complete plain beam. These pieces represent the plain butt portions of the lintel which were chopped off from the carved panel. Fragment 1 and Fragment 3 are the only ones in which complete width could be determined. These measure 0.27 m. wide (thickness, 0.11+ m.) and 0.16 m. wide (thickness, 0.15 m.). These dimensions in width differ sufficiently among themselves to preclude them from being from the same beam. Consequently there is every reason to consider these widths in reconstructing the entire lintel width. Neither butt, of course, can be from the plain whole beam lying on the chamber floor debris. Fragment 1 (0.27 m. wide) might possibly be from the right hand beam of the two in New York if the latter could be shown to be complete in its extant width (0.29 m.); this does not seem to be the case.

Various schemes have been tried and the following arrangement (Fig. 36) seems the best in terms of available beams, and butts, of the known width of the lintel, and of observations by Morley and Maler.

South

Beam	Width	Location
a	0.22 m.	on floor of chamber
b	0.16 m.	Frag. 3
c	0.39 m.	see Fig. 36 c
d	0.29 m	see Fig. 36 *d*
e	0.27 m.	Frag. 1

North

The total of the individual beam widths is 1.33 m., or a mere 0.02 m. less than the apparent original lintel width of 1.35 m. Had the calculation been made on the basis of the east jamb, rather than that of the west one, there would be exact agreement.

This arrangement of beams is conditioned by the evident requirement of placing the carved beams in New York close to the center of the lintel. Furthermore, assuming that the factor of lintel–structure orientation was followed here (see p. 31), the top of the panel must have been set to the east and the bottom to the west so that the principal personage in the scene looked to the south. Beam e (Fragment 1) becomes the innermost one on the grounds that it was one butt of a carved beam (why else would it have been chopped off ?) which was sufficiently wide to have carried a border plus the completed continuation of the background and raised carving seen on Beam *d* (Fig. 36d). Beam *b* should also have been carved but without the deep carving seen on Beam c (Fig. 36c). For instance, Beam *b* would be expected to have carried at least the remainder of the heron wing on Beam c and perhaps the left side of the intricate basal panel. The intact plain beam from the chamber floor, uncut and discarded because it was plain, by a process of elimination, must be Beam *a*. Confirmation is found in the single measurement of beam impression obtainable. This was taken in the west lintel socket from the south edge of the lintel position to a plaster ridge. 0.36 m. to the north. The combined widths of Beams *a* and *b* total 0.38 m. (0.22 m. plus 0.16 m.) which sufficiently approximates the field measurement as to indicate a plausible fit.

In summary, Maler's notation of five beams appears to be justified by the surviving evidence. Beams c and *d* were certainly in place at the time of his visit (he provides a fanciful but pertinent description) as well as at that of Morley and Spinden. For the "greedy treasure seekers" from Flores to have removed and carried off *two* carved beams would have required their simply working out Beam e (which should have completed the carving on Beam *d*). But to remove Beam *b*, the only other one seemingly carved that could have been taken by them, would have necessitated first taking out plain Beam *a*. They would have been obliged to do so unless Beam *b* was dangling, supported only by the butt known as "Fragment 3." In any case, Maler and Morley could have seen only two truly carved beams. If they did see three in position, as claimed, it follows that Beam *a* was still in place and that they presumed it to have been carved. As has been noted, Morley did attribute the Temple II beam (Fig. 36c) to Structure 10, perhaps misguided by an error in museum cataloguing. He may have mistakenly believed that the supposed third beam in the Structure 10 lintel was this beam.

F. SUMMARY

Seven carved wooden lintels are now known for Tikal: Temple I, Lintels 2 and 3; Temple 2, Lintel 2; Temple III, Lintel 2; Temple IV, Lintels 2 and 3; and the Structure 10 Lintel. The largest carved panel occurs on Lintel 2 of Temple III. No complete carved lintel is known to survive at Tikal. Those responsible for removing the two beams of Lintel 2 of Temple I, the bulk of the beams of Lintel 2, Temple II, and possibly Beam *a* of Lintel 2 of Temple III are entirely unknown. The bulk of Lintel 3 of Temple I and Lintels 2 and 3 of Temple IV are preserved in the Museum für Völkerkunde, Basel and the British Museum. One beam (Beam c) of Lintel 2 of Temple II and two beams (c, *d*) of the Structure 10 lintel have been preserved in the American Museum of Natural History. Two other beams from the latter lintel were removed by people from Flores in the 19th century. Nothing is on record for nine carved beams: Temple I, Lintel 2, Beams c and *d* and Lintel 3, Beam *d*; Temple II, Lintel 2, Beams *a*, *d*, and e; Temple III, Lintel 2, Beam *a*; and the Structure 10 lintel, Beams *b* and e. All outer doorways of the great temples are believed to have been spanned by plain lintels.

MISCELLANEOUS DATA

1. *OBSERVATIONS ON BEAM CUTTING, CARVING, AND INSTALLATION*

Two types of local wood, zapote (*Achras zapota*) and logwood (*Haematoxylum campechianum*), were employed for doorway lintels and vault beams. Both trees grow today abundantly in all the environs of Tikal. Logwood, formerly an important source of dyes, is a low growing, multiple stemmed tree found only in swamps. Zapote, in contrast, rarely occurs in logwood swamps but grows abundantly on elevated terrain with its well-drained shallow soils which overlie porous limestone base rock. Zapote is a tall, normally straight, single stemmed tree. Today it is exploited as the prime source of chicle for the chewing-gum industry. Both zapote and logwood rank among the hardest and most durable tropical woods of the world.

Logwood, though frequently used in ancient times for lintels and vault beams, evidently

was unsuited for carving because of the small diameter and the irregularity of its surface. All examples preserved in Tikal buildings are natural size logs, cut at either end to the lengths required for a particular doorway or vault, but unaltered further except for the stripping-off of the bark (which actually was not removed in all cases). Zapote, on the other hand, being a large, tall, and straight stemmed tree, had to be felled, then cut into logs. Cross-sectioning of six zapote lintel beam butts (from Temples I and IV) indicates that four beams (Temple I, Butts "A," "C," "D"; Temple IV, Butt "G") had been fashioned from logs by removing the bark and squaring the log. One other specimen (Butt "B," Temple I) appears to have been made from a halved and squared log. The sixth specimen (Butt "A," Temple IV) could have been made from either a halved or a whole log, more probably the latter. These lettered butts are further discussed on pp. 45–46.

We have good reason to respect the ancient workmen for their ability to hew beams from a zapote tree with only stone implements available to them. We are having considerable difficulty replacing the missing zapote beams in the "Great Temples" despite the advantage of modern equipment which includes steel axes, tractors for hauling, a sawmill, chisels and adzes for shaping the beams, and mechanical hoists, jacks, and steel cables for lifting them into place. The hard, tough zapote wood, estimated to weigh some seventy pounds per cubic foot, rapidly dulls steel tools. Our experience with zapote wood demonstrates that freshly cut wood, though exceedingly tough, is less hard and brittle than after drying. This factor leads to the assumption that the Maya with their stone tools carved the beams while still fresh. All the plain and carved lintels discussed in this report are of zapote wood. Normally, the lintel beams are approximately rectangular, with the four faces worked to a smooth plane.

As regards the question of carving in position, one would expect that the task of carving beams after installation would have been infinitely more difficult than carving before installation. The limited light within the temple rooms would have seriously hampered carving (Angel Fernandez, 1939) as would the elevations of the lintels above the room floors, requiring scaffolding and probably a prone working position. Previously it was felt (Coe, 1958, pp. 78–79) that the beams were installed already carved because the beams appeared to have been deliberately separated during installation, yet, when they were brought together on paper while being drawn, it was found that carving on two adjacent beams coincided exactly. The fact is that we are no longer certain that these beam divisions may not have resulted from contraction due to dessication during the long period following their installation. The plaster squeezes, so useful in reconstructing a missing lintel, may have occupied the space provided by two adjacent beams slightly trapezoidal in section.

Nothing essential can be added to the common supposition that carving was carried out by the use of obsidian flake-blades, hardstone chisels (which the bulk of recovered "celts" seem to have been), scrapers of flint and obsidian, drills of flint and reed (to rough out deep background), and abrasives for final finish. Extreme micro-photography might reveal evidence of tools and materials employed.

Observed structural practices in Tikal buildings show that masonry walls were erected to the height of, or within one course of, the vault spring and capped with lime plaster. The reason apparently was to allow the wall masonry time to dry and set before adding the structural load of the vault and superstructure. In both doorways of Temple III, however, it was noted that special, plastered areas had been prepared to receive the lintel beams (Fig. 21 c). The portions of walls adjacent to the jambs had been so constructed that when the beams

were positioned, they rested well below the true tops of the walls. A gap of 0.12 m. occurred between the south end of Beam *b* of Lintel 1 and the vertical portion of the inset, and a gap of 0.20 m. in the case of Beam *a* (north end) of Lintel 2. This particular feature of walls specially prepared for lintels is not easily observed and we are uncertain at this time of its distribution elsewhere at Tikal.

At some time before or during wall "ageing," the beams were shaped, and beams to be carved were laid against each other, the scene blocked out, and the sculptor and possibly assistants were set to work. In specifying the quantity and lengths of beams, the architect had to take into account the width of the doorway and its thickness, while the sculptor had to know the dimensions of the doorway before plotting the scene to be carved on the parallelly arranged beams, and in the case of at least Temple III, the length of the specially prepared wall beds.

The handling of the delicately carved beams during the ascent to the temple rooms must have been a problem, as must also have been their actual installation. Possibly each carved beam was protected by a padding of palm leaves or cotton, wrapped with woven mats, and firmly tied with fiber cord. Considerable engineering skill was required in transportation and installation.

Once the carved beam had been hoisted into approximate position (with the bottom of the carved panel always set to the south in Temples I through IV), the protective wrapping around each beam was removed to permit the final exact alignment and close setting. However, the lintel, once accurately assembled, still needed protection, evidently from the construction activity which followed.

It was noticed that, where a lintel had fallen or had been removed, the masonry directly above it frequently showed impressions of woven mats and cords. The positions of the mat impressions indicate that the mat just overlapped the top two edges of the lintel area between the door jambs. The cord or twine impressions are at a right angle to the long axis of the lintel and similarly occur between the door jambs. These impressions begin from 0.11 m. to 0.40 m. in from the jamb face. The cords range from 0.002 m. to 0.006 m. in diameter and show a simple twist of two or three fiber strands. The mat impressions suggest a plain weave pattern of over-and-under, probably of palm leaf. The weave is indistinguishable from that found in mats of modern highland Maya in Guatemala.

These cord and mat impressions are interpreted as evidence that mats covered the carved underside and the sides, and overlapped the upper edge of the lintel, thus affording some protection against damage during the construction of the masonry vaults and the final plastering of the building interior. Following completion of the building, the mats were cut away, revealing the carving and leaving the buried mat edges and cord to rot between the masonry and the top surface of the lintel.

There is some evidence that one, if not all, of the carved lintel panels was painted red at this time. Latex molds of the Temple I, Lintel 3 beams in London and Basel interestingly picked up traces of red paint from the carved surfaces, especially but not exclusively from deep areas of carving. The distribution of these small red patches indicates that the entire carved panel of this lintel had been painted a uniform red. Analysis of a sample by Mr. A. Eric Parkinson, University Museum chemist, clearly shows the pigment to be cinnabar. We cannot say whether or not the plain areas surrounding the panel were ever painted red. No trace of paint was noted along the tops of the door jambs although some traces of red might be expected had the plain areas been painted after installation.

Molds of two Temple IV lintels failed to provide definite traces of this red pigment. However, in view of the slight amount picked up by the molds of the Temple I beams, it is possible that all evidence of painting could have been normally lost. Still, we cannot

assume painting on all carved lintels at Tikal. No trace of red paint was seen on Lintel 2 of Temple I nor on Lintel 2 of Temple III, both at the site and carefully cleaned and studied.The possibility that the painting of Lintel 3 of Temple I was connected in some way with a two-part offering is suggested by the finding of Cache 49 below the buried portions of this lintel.

Cache 49 A had been set beneath the north end of the lintel in a simple oval hole in the wall masonry while the fairly recently looted offering, Cache 49 B, was comparably situated beneath the south portion. Full data on this two-part "dedicatory" offering is given in Tikal Report No. 13. The south repository is evidently the source of the three red-painted or impregnated stingray spines mentioned by Shook (1958 a, p. 8) in a summary of debris excavation within the temple rooms in 1957. A speculative point is that both parts of the cache contained considerable quantities of a red pigment (presumed from its color to be cinnabar); since the lintel was painted red, may not the coincidence have been meaningful and perhaps unique? Cache 49 was the first known example of a cached offering in association with a lintel but it should be emphasized that other doorways which once supported carved lintels have yet to be investigated for such deposits.

2. *THE QUESTION OF RESETTING OF LINTELS*

Keeping in mind the large amount of evidence of reset stelae and altars at Tikal, both plain and carved (Tikal Reports Nos.12, 14 in preparation), one must consider the possibility that lintels were salvaged from older structures for reinstallation in such major constructions as Temple I. We can find no indication that any carved lintel was reset; such evidence would be gross stylistic incompatibility between two carved lintels in the same structure, a carved panel height exceeding the associated door width (with concealment of some carving resulting), or even especially high plain areas above and below the design panel. All carved lintels appear to fit in their doorways. There can be less certainty with regard to the plain lintels.

3. *LINTEL BEAM BUTTS AND CARBON-14 SAMPLES*

In a program of collecting wood samples from lintel beams and vault beams throughout the site, various lintel beam butts were selected for sampling. These butts occurred on the floors of the rooms of Temples I and IV; in all cases they were so cut as to indicate that they originally belonged to the carved beams which were removed from these temples. Prior to being sampled, the butts were transversely sawed to provide a fresh face for observation of the growth pattern. Samples of wood were taken from the latest growth as indicated by the pattern. The problem is to determine to which beams of which lintels the butts belonged.

TEMPLE I

"Butt A" measures 0.32 m. wide and 0.18 m. thick; probably from either Beam c or Beam *d* of Lintel 3; too wide to be from Beams c or *d* of Lintel 2 (see Table 2); there are no other possibilities. Field C14 sample, T–95.

"Butt B" measures 0.175 m. wide and 0.20 m. thick on the prepared face; this is a surviving fragment of Beam e of Lintel 3 (see Table 2 and Fig. 13 e) with a maximum width of 0.185 m. and a thickness of 0.21 m. Field C14 sample, T–318.

"Butt C" measures 0.33 m. wide and 0.22 m. thick; Beam c of Lintel 3 seems

a likely source; if so, "Butt A" would be more probably from Beam *d*, particularly in view of the thickness difference between the two butts; there are no other possibilities. Field C14 sample, T–77.

"Butt D" measures 0.25 m. wide and 0.20 m. thick; if not from Beam *d* of Lintel 2, less likely candidates would be Beam c of Lintel 2 or Beam *b* of Lintel 3 (see Table 2). Field C14 sample, T–83.

TEMPLE IV

"Butt G" measures 0.24 m. wide and 0.205 m. thick; beam widths (Table 2) indicate Beam *e* or Beam *g* of Lintel 3 as the most probable source of this butt. Field C14 sample, T–478.

"Butt A" measures 0.31 (+?) m. wide and 0.20 m. thick; thickness consistent with thickness range of beams of Lintel 3; exact beam indeterminable, but Beams *a*, *d*, and *f* are likely possibilities. Field C14 sample, T–484.

APPENDIX

INSCRIPTIONS AND OTHER DATING CONTROLS

By Linton Satterthwaite

INTRODUCTORY REMARKS

We use the structure numerations of Morley (1937–1938). Temples I and IV had previously been labeled A and C by Maudslay; new names and map designations are given throughout the main text of this report, and in Report No. 11.

The carved lintel beams here considered include the total surviving corpus of legible or partly legible Tikal dates on wood. These are from Temples I and IV, and from Structure 10. Their importance is now much enhanced by attempts to apply radiocarbon controls, and to use the results as checks on correlations of the Long Count with Christian chronology. This being the case, correct assignment of contemporaneous "Dedicatory" or "Commemorative" dates is especially important. Lintels at Temples II and III, without surviving dates, will be considered last. With a single exception, the texts we are concerned with have been well studied before, and Morley's 1937–1938 decipherments are the points of departure. The inscriptions are presented in the standard manner adopted for stone monuments (Tikal Report No. 4, pp. 89–92). Before proceeding with the individual inscriptions some background exposition is desirable, most of it being directly or indirectly concerned with the problem of trying to assign correct and precise dedicatory dates.

CHANGED LONG COUNT POSITIONS

Since Morley's presentation of the texts at Temple IV, Beyer had shown that the panel giving Morley's latest four dates for Lintel 2 of that temple must belong elsewhere (see pp. 28–29). This is the panel shown on Maudslay's Pl. 71, with a drawing of the glyphs on p. 74. Coe and Shook now show that these beams are parts of Lintel 3 of Temple I (Fig. 13). This is in line with Beyer's convincing case that the opening date of this panel, 9 Ahau 3 Pop, should be placed at 9.13.3.0.0, a position once suggested by Spinden, one CR period earlier than the 9.15.15.13.0 of Morley (see pp.68–70). This requires moving back the other three dates of this panel accordingly. One has the problem of deciding whether one of the four dates, at the new LC positions, can safely be assigned DD status, a matter which Beyer did not discuss in any detail.

IMPROVED CORPUS OF ILLUSTRATIONS

Many of the carved beams have been re-photographed by the Tikal Project, with lightings from various angles to bring out details. Coe's photographs and drawings of Lintel 2 of Temple I seem to be the first ever to be published, and they include a damaged glyph-panel to

which no attention has been paid. His photographs and drawing of Lintel 2 of Temple III are the first complete and accurate ones. Though these provide no dates they have been used for style dating.

REVISED STYLE DATING

In her 1950 study Proskouriakoff lists 9.16.10.0.0 ± 2 katuns for "Temple IV (?) lintels," citing Maudslay's Pl. 71 as well as his Pl. 77. Evidently this result is a composite one involving beams from two temples, Temple I as well as Temple IV. Supplied with full (presently available) data, Proskouriakoff has applied her system anew, with separate curves for each wooden lintel at the site (see Table 3). It results that we have two mean style dates and "spreads" at Temple I and at Temple IV. In the synoptic headings we give those for each of a pair of lintels, and also the early–late limits covering the spreads from the two combined. It seems fair to say that a DD which does not fall far outside the combined limits does not seriously "disagree" with the style-date analysis. For the Temple IV lintels the two sets of limits fail to coincide by only a half katun, but at Temple I they are staggered by one and one-half katuns. We do not consider that this is sufficient ground on which to postulate different DD's for the two lintels of the latter temple (see below).

LINTELS AS "MONUMENTS"

The pictorial and inscriptional content of a Tikal wooden lintel does not differ in kind from that of stone monuments. We may, for example, compare Lintel 2 of Temple III with the early Tikal Stelae 23 and 25. In each case there are three full-scale human figures. On the lintel they face the principal figure in the center. On the stelae they are on the sides but face observer's left and right respectively–i. e., both face to the front, as if a design like that of the lintel, too wide for the front only, had been carried around to the sides. This device is even clearer on Stelae 1 and 2, though only one figure is involved. As on monuments, which may also place the "scenes" and the inscription on one surface only, the lintel inscriptions may exhibit only one date or several, fixed in the Long Count. The usual assumption that time-marking by a dedicatory date was involved in lintel texts as on monument texts seems justified. Of course the assumption implies that the same rules for recognizing DD's apply in both contexts.

Evidence tending to confirm the view that a carved lintel with dates was in effect a specialized monument was obtained during the last (1959) season when Trik found that a divided offering had been placed in the wall masonry on either side of the doorway, just below the ends of the central beam of Lintel 3 of Temple I (Tikal Report No. 13, Cache 49 A, B). Though the contents of these two deposits differ in kind from those common in sub-stela caches, in either context the offerings must have been made shortly before carved units were put in place, in the course of "dedicatory" ceremonies.

It should be conceded, I think, that if the lintels were essentially specialized monuments with dedicatory dates, these dates were not dedicatory for the completed building, as a whole. Such dates would follow completion of substructure building but would precede the beginning of vault erection on the walls of the building proper, and the still later construction of ornamented exterior upper zones and roof combs. This conclusion is inescapable, unless one supposes the carving was done after the beams were in place, which seems unlikely (this report, p. 43). It may well be that "dedicatory" ceremonies took place as various stages of construction were completed, and that installation of carved lintels involved "dedication" of the walls. If so, we still have an analogy with stelae which, at Tikal and at various other sites were positioned with reference to architectural constructions.

RELATED TEXTS ON PAIRS OF LINTELS

In two temples (Temples I and IV) we have pairs of carved lintels. Regarding them as the equivalents of stelae, we have the theoretical possibility of differing dedicatory dates in the same temple. This seems extremely unlikely, for the construction program would probably call for more or less simultaneous placement of all lintels. Morley assumed this for the lintels of Temple IV, citing various close correspondences in the two texts, which are later enlarged on (pp. 57–58). At Temple I there were no such textual similarities, but contemporaneity is suggested by the giant-sized figure of a jaguar on Lintel 3 and a giant-sized figure of a serpent on Lintel 2. Our conclusion is that we should look for single dedicatory dates in each temple, but in each case, should consider the two texts together.

While at Temple IV the texts on each lintel may be read separately, this was not necessarily the case at Temple I. At Yaxchilan, in reading a single continuous text one may obviously pass from one stone lintel to the next, but unfortunately these lintels were all in the facades, not one behind the other as in the Tikal temples. It seems a safe presumption, however, that Lintel 2, reached first by an observer, would be read first, whether or not there were two separable texts.

At Structure 10, a palace, we have only one carved lintel to deal with. It spanned the inner central doorway on the first floor of a two-story building and there is every reason to suppose its single date was the dedicatory one for in the lintel. The nomenclature which makes this a "third story" location is discussed on p. 72.

CRITERIA FOR IDENTIFYING DEDICATORY DATES

At Structure 10 we have only one lintel and one date to deal with; but at each of the two temples we have two lintels, and in each case several dates. In both cases we shall have difficulty in deciding that some one of the recorded dates was the dedicatory one. Hence some account of the rules which may be brought to bear on the problem is desirable.

Morley's writings are replete with fully explained decisions on sure, doubtful, and very doubtful dedicatory dates, but the writer has not found a comprehensive summary of his principles in some one place. He quantifies his findings in two tables (1937–1938, Vol. IV, pp. 290–291). Though these tables include dubious readings it seems clear that the great majority of recognized dedicatory dates are at tun-ends, and that these may be classified as follows, in decreasing order of frequency:

Hotun-ends:	Katun-ends
	Half-katun-ends
	Quarter-katun-ends (1st and 3d)
Odd tun-ends:	13th tun-end
	Other odd tun-ends

General discussions of the problem are to be found in Thompson 1950, pp. 154–156 and Proskaouriakoff 1950, pp. 9–10. Thompson makes the important observation that "there are no fool-proof" rules."

I think the following rules cover the great majority of accepted contemporaneous dates:

1. The recorded Dedicatory Date is at a tun-end.
2. It is the only date recorded or, if not, the latest date recorded.

   Exception 1: The latest date recorded, not fixed by secondary series, is at the end of the current katun or baktun. This amounts to adding the "name" of the current period.

Exception 2: There is one odd date, later than the dedicatory tun-end by less than a year (for examples see Morley, 1920, p. 333).

In Morley's classification of DD's there was a residuum of odd dates (non-tun-ends). Included are the earliest supposedly contemporaneous dates, such as the odd IS on the Leyden Plaque and Stela 9 at Uaxactun. Proskouriakoff accepts odd dates as DD's only if given by very early IS, and even so, evidently with some misgivings. Thompson, in the cited discussion, takes no position on odd DD's. Morley did not entirely limit them to Initial Series nor to the early period. We may cite two examples; he lists 9.13.7.3.8 (??) in his synoptic heading for Stela 5, Naranjo, this being his position for the only date given, a CR date; and 9.9.2.0.4 (?) for Naranjo Stela 25, this being the position of the latest of several odd dates given, the earliest only being by IS, though the date at 9.9.2.0.0, a tun-end, was recorded.

All "Late Period" (see p. 51) Tikal stone monuments record dates which qualify as dedicatory under Rules 1 and 2, as does the lintel of Structure 10; but in dealing with the dates of Temples I and IV the possibility and the certainty of odd latest dates not provided for in Exception 2 above must be dealt with. The safest course would appear to be to consider unsettled the question whether they might be dedicatory, but to regard such an interpretation with suspicion, especially in the "Late Period" of our lintels. Morley himself, in the case of Temple IV, considered and rejected what he thought was the latest date on the two lintels, an odd one, but not because it was in the Late Period.

Another approach to DD identification is the position of the date in the text. Both Thompson and Proskouriakoff note that it is likely to be given near the end of the text. Among the Tikal "Late Period" stone inscriptions, Stela 5 may be said to conform to this pattern—i. e., the dedicatory tun-end and latest date is the second of the two dates given. But Stelae 22, 19, and doubtless Stela 21 also carried two dates; the dedicatory tun-end dates, expressed as PE's, open these texts, followed by earlier odd dates. Since this seems to be the dominant pattern, one probably read the DD on Stela 16 first and then passed to the earliest of the earlier odd dates on the accompanying Altar 5 (instead of reading the altar first, as Morley thought). This approach to the temple lintels with several dates is not as helpful as one might hope. The texts open with tun-end dates, declared as PE's and correspond in this respect to Stelae 21, 22, 19, and probably Stela 16/Altar 5; but the count from the start is forward, as on Stela 5, though not to a tun-end. This failure of the texts on the temple lintels to correspond fully to one or the other of the patterns on the stelae tends to confirm the doubt that the recorded tun-ends were dedicatory.

Returning to the question of possible odd DD's, if they are to be admitted, Rule 2 alone would logically apply to them—such a DD would probably be the only date given, or the latest one. If such dates are not admitted as dedicatory, in a text without qualifying tun-end date, one must assume the DD was suppressed and was understood from the context. If this happened, there is a probability that the suppressed DD was not much later chronologically than the only odd date recorded, or the latest one, because when a tun-end DD is given with one or more earlier odd dates, the single earlier one, or the latest of several, is ordinarily not far behind the dedicatory tun-end. Thus when Morley suggests a non-recorded 9.16.0.0.0 (??) as the DD of the Temple IV lintels, he chose this as the end of the katun current as of the latest recorded odd date. Because of the obviously dominant katun-marking pattern at Tikal, this is the latest reasonable alternative to the odd date itself, and the one most likely to be left to be understood from the context.

In dealing with Lintel 3 of Piedras Negras, where each 5-tun period was regularly

marked, Morley proposed 9.16.10.0.0 (?), this being the end of the current 5-tun period,as of the latest of several odd dates (with no recorded tun-ending dates). Thompson later spotted a still later odd date in this text, and suggested 9.17.15.0.0 as the DD, following the same principle (Morley, 1937–1938, Vol. III, pp. 220–229; Thompson, 1944, pp. 77–78). Such DD's cannot very well be offered without question-marks. If wrong, a DD inferred in this way is probably too late, not too early, and with an error of less than a katun.

"EARLY" AND "LATE" TIKAL MONUMENTS

In Tikal Report No. 4, the writer used the terms "Early Tikal" Period for known monuments thought to be no later than ca. 9.7.0.0.0, and "Late Tikal" Period for those ranging forward from 9.14.0.0.0. These were terms of convenience referring to monuments only, used instead of "Early Classic" and "Late Classic," which have area-wide implications not confined to monuments alone. To avoid confusion we shall henceforth try to specify "Early Tikal Monuments Period" and "Late Tikal Monuments Period" unless the context makes it clear that this is all that is meant. Their meaningfulness depends on the existence of a gap in the sequence which separates them, and they will become obsolete if this gap disappears as new finds are made.

STYLE DATES FOR THE SEVEN KNOWN CARVED LINTELS OF FIVE BUILDINGS

Our style dates are by Proskouriakoff using her system, and are given here by permission. At two of the buildings involved there are no epigraphic controls on the dedicatory dates, and at two others there are doubts as to correct and precise DD's. In view of this, and the special interest in inscriptions and Maya art on wood, the style date results are considered together here, with only anticipatory reference to epigraphic evidence to be examined later. Table 3 on p. 81 makes visual comparisons of the various "spreads." The results, in usual form are:

TEMPLE	I, Lintel 2:	9.17.10.0.0 ± 2	katuns
	Lintel 3:	9.16. 0.0.0 ± 2	katuns
TEMPLE	II, Lintel 2:	9.15. 0.0.0 ± 3	katuns
TEMPLE	III, Lintel 2:	9.19. 0.0.0 ± 2 1/2	katuns
TEMPLE	IV, Lintel 2:	9.15.10.0.0 ± 2	katuns
	Lintel 3:	9.16. 0.0.0 ± 2	katuns
STRUCTURE	10 Lintel :	9.16.10.0.0 ± 3	katuns

Some little discussion of the method seems called for. The basic questions in mind are whether the findings for the Temple I lintels cast serious doubt on epigraphic limits to be suggested later for the DD there; and whether the style date limits for lintels at Temples II and III can be properly used for inferring the chronologic positions of these two buildings in the sequence of five, though in those cases epigraphic control is entirely absent.

The specified LC dates may be tagged as "central" within a "spread" or "range" which is allowed for in either direction. In any instance the "central" date and the amount of the spread depend on the position and shape of a curve which, in turn, depends on the presence of a group of specific traits judged to have chronological significance. We quote a cautionary admonition respecting this graphic method of obtaining the estimates: "It is hoped that

the very fact that it is simple and frankly arbitrary will discourage an expectation of accuracy and infallibility, which is sometimes attached to mathematical procedure'' (Proskouriakoff, 1950, p. 12). It must be understood that the plus-minus style date allowances do not involve the mathematical theory of probability, as do those supplied with ''Before Present'' dates obtained with the C–14 method. Though the style date spreads are systematically arrived at, there is no claim that they must cover the actual dedicatory date in every case, though in general that is the expectation.

Testing with monuments firmly dated by epigraphy, Proskouriakoff constructed a ''graph of error'' which ''reveals the fallibility of the method.'' But she found that ''Most of the large errors, however, occur when the style estimates are based on five traits or less. Ninety-one percent of the errors are not more than two katuns when more than five traits can be used in the graph.'' An allowance of ± 2 katuns is the minimum used, and one assumes that in such cases the available surviving traits have yielded satisfactorily sharp curves. Among our Tikal lintel estimates we have such optimum results only at Temples I and IV. These, as well as less narrow spreads, are doubtless meant to be covered by the following: ''As a method of chronological estimate, the stylistic appraisal is at best only one line of evidence which should be supplemented by others'' (*ibid.*, p. 12). This means, surely, that other evidence, including epigraphic evidence, may be expected to occasionally call for stretching the limits provided by the Proskouriakoff method, especially (one supposes) when those cover the minimum four katuns.

The estimates depend ultimately on time-distributions and frequencies of selected traits as established on epigraphically datable monuments. Such monuments are most plentiful for the Late Classic Period. So far as the factor of adequate material at Maya sites generally is concerned, one would expect the estimated spreads for the Tikal lintels to be sufficient.

An admitted weakness in the system is its failure to make allowance for regional differences in the known ranges for the traits used. One gathers that there is not enough material to make this feasible. However, the method has been applied to five Tikal stelae of the ''Late Tikal Monument Period.'' Considering these as a fair sample, they show empirically that the system works very nicely at this site and in that period.

	DEDICATORY DATE	STYLE DATE
St. 16:	9.14. 0.0.0	9.15. 0.0.0 ± 2 katuns
St. 5:	9.15.13.0.0	9.17. 0.0.0 ± 2 katuns
St. 20:	9.16. 0.0.0	9.15.10.0.0 ± 2 katuns
St. 22:	9.17. 0.0.0	9.16. 0.0.0 ± 2 katuns
St. 19:	9.18. 0.0.0	9.18.10.0.0 ± 2 katuns

Although in each case the spread is the minimum ± 2 katuns, in each case it covers a recorded and legible dedicatory date. The first three estimates are from Proskouriakoff 1950, the last two from Tikal Report No. 4. The result for Stela 19 replaces the 1950 ''Late Classic, Dynamic Phase ?'', illustrating the fact that estimates may be improved with better illustrations if they add more recognizable traits. The more specific estimate is entirely consistent with the earlier vague one.

The five stelae are fairly close together chronologically, as determined by the DD's, and this is reflected in overlapping style date limits. Supposing all the DD's were lost, we could legitimately infer that they all probably fell within a combined spread covering all the

individual ranges, i. e., within the range 9.13.0.0.0–10.0.10.0.0. Reasoning in the same way for the lintel series one obtains 9.14.0.0.0–10.1.10.0.0. But the qualifying "probably" is essential, since the individual spreads are not guaranteed to be sufficient in all cases, hence a combination of them is subject to some degree of doubt. Later, using epigraphic evidence, we suggest that the style date limits for the lintels of Temple I need stretching in the early direction.

The stela series illustrates what is implicit in the style date statements. The actual DD, if known, may lie either before or after the "central" style date. The latter may deviate from the DD in either direction, and there is an estimate of the maximum amount only. In the case of Stela 5 the maximum amount is approached, in the minus direction. It should be considered mere chance that the other four central dates, if substituted for the DD's, would yield a correct sequence for those four stelae. The same device would make Stela 5 the fourth instead of second in the sequence. The spreads for the lintel series are also overlapping throughout. In such a situation the style date data alone cannot be used to obtain a chronological sequence in which one can have confidence.

The specific "central date" arrived at must be conditioned in part by the particular time-indicating traits which happened to appear on the monument. The groups of traits on two monuments dedicated at the same time would not be expected to be identical, and one would expect differing central dates within overlapping spreads. An example within the Central Peten region and the Late Classic Period is provided by Stelae 29 and 30 at Naranjo. Proskouriakoff obtained style date estimates of 9.13.0.0.0 ± 2 katuns and 9.14.0.0.0 ± 2 katuns, respectively. The central dates are a katun apart, but the DD, 9.14.3.0.0, is within each individual spread.

If the DD for two lintels at Temple IV is within the limits 9.15.10.0.0–9.16.0.0.0, as concluded later on (p. 59), we have the same sort of confirmation by style date limits there. But at Temple I, if the DD for two lintels is as early as 9.13.3.0.0 (p. 71), both style date estimates must be taken as too short. To cover such situations we have used "combined limits" covering both individual ranges, in the case of the Temple I lintels, from 9.14.0.0.0 9.19.10.0.0. These must be increased by 17 tuns in the backward direction to cover the indicated DD. Proskouriakoff is not responsible for such "combined limits" and perhaps a fairer measure of the disagreement would result if the traits on both lintels were lumped together to get a single set of "combined traits" limits. The "stretch" to 9.13.3.0.0 would then be more than 17 tuns. But if we avail ourselves of the fact that the given spreads can by stretched when other good evidence requires it, the precise amount has no particular meaning.

LINTELS 2 AND 3 OF TEMPLE IV (STR. 5C-4)

Location:	*Lintel 2:* 6 beams (*a–f*) originally spanned middle (interior) doorway; see this report. *Lintel 3:* 7 beams (*a–g*) originally spanned rear (interior) doorway; see this report.
Dedicatory Date:	Suggested limits 9.15.10.0.0–9.16.0.0.0; Morley gives 9.16.0.0.0 (??) here suggested as preferred; see text.
Style Date:	*Lintel 2:* 9.15.10.0.0 ± 2 katuns; *Lintel 3:* 9.16.0.0.0 ± 2 katuns; combined extremes, 9.13.10.0.0 – 9.18.0.0.0 (Revised Proskouriakoff estimates; see Table 3).
Condition:	Some areas missing, no lost glyphs, all date-readings certain.
Photographs:	*Lintel 2:* Figs. 22–28 of this report; Maudslay, Vol. III, Pl. 72. *Lintel 3:* Figs. 29–35 of this report: Maudslay, Vol. III, Pl. 77: Morley, 1946, Pl. 32 a; 1956, Pl. 33 a; Thompson, 1950, Pl. 52, *1*, *2*.
Drawings:	*Lintel 2:* Maudslay, Vol. III, Pls. 73, 74. *Lintel 3:* Maudslay, Vol. III, Pl. 78.
Other References:	This report; Morley, 1937–1938, Vol. I, pp. 355–362; Beyer, 1943, pp. 338–343; Proskouriakoff, 1950; Libby, 1954; Satterthwaite, 1956.
Carved Areas:	Undersides only, so far as known.
Material:	Wood (zapote).
Dimensions:	See this report, Table 2.
Orientations:	Bases of designs to south, principal figures faced entrance, to observer's left.

GENERAL REMARKS

Lintels 2 and 3 of Temple IV are from the building on the highest known Maya pyramid, and Lintel 3, the better preserved of the two, is famous as a great example of Maya sculptural art. The two samples measured by Libby for C-14 content came from two beams of this lintel, and the average result, A.D. 451 ± 110 years, was a major factor in casting doubt on the "11–16" correlation of the Maya Long Count with Christian chronology. As of the time of writing, a check of that finding is in progress at the University of Pennsylvania C–14 Laboratory.

In noting his results and their bearing on the correlation problem, Libby used 9.15.10.0.0 as the Maya date for the lintel, and the writer assumed the same in subsequent comment. It is suggested below that this must be considered an early limit for alternative possibilities, with 9.16.0.0.0, which had been suggested by Morley with two question marks, as the latest acceptable limit. The 10-tun leeway is non-significant in amount for C-14 comparisons. On the other hand, it allows but does not require that the walls of the palace-type Str. 10 and those of the temple were going up at the same time.

COMMENT ON THE INSCRIPTIONS

Maudslay's plates cover both lintels, and Thompson has published exceptionally fine photographs of a cast of the glyphs of Lintel 3 (1950, Pl. 52, *1* and *2*). New photographs appear in Figs. 22–28 and Figs. 29–35 which are intended to relate what is surviving to what is missing, at the same 1:12 scale adopted for stone monuments in this series of reports. These figures utilize a selection of photographs with various lightings, from a set obtained by Shook in 1956 from the museum at Basel. He also obtained latex molds from which epoxy casts have been made. The latter also have been useful in checking a few details.

Reasons for considering the two lintels together have been given, as well as for supposing that Lintel 2 was read first. Though they may be read separately, their parallelism is further developed below. To make this more obvious we have lettered the dates of Lintel 2, A–D, and those of Lintel 3, AA–DD, and the "Summaries of Chronology" are placed side by side, as suggested by Morley.

So far as they go, all dates, secondary series numbers and Long Count positions, are as in Morley, but as explained earlier, his last four dates for Lintel 2 belong in Temple I, not here. Thompson gives the chronological summary for Lintel 3 only (1950, Fig. 52, 1 and 2). The transfer of Morley's supposed second panel for Lintel 2 to the corresponding position in Temple I leaves the numeration of what remains unchanged. His supposed Columns D–E did not exist, and Columns G–K must be re-lettered at Temple I. The illustrations accompanying our report indicate that no glyphic areas are missing here at Temple IV. No reading of a date or its Long Count Position is questionable. The Secondary Series lack the SSIG and Anterior or Posterior Date Indicators, as is usual at Tikal.

Lintels 2 and 3 of Temple IV: Glyph Classification and Chronological Decipherment

(Order of reading: left-right and downward in double column. Number of blocks on Lintel 2: 42; on Lintel 3: 28 + 36 = 64).

Lintel 2

A	(9.15.10. 0. 0)	A1–B1	3 Ahau 3 Mol
		A2	Half-katun (half-period glyph, damaged, prefixed to head-variant katun glyph–see text)
	2.11.12	B2–A3	12 (kins), 11 uinals, 2 tuns (head-variant period glyphs)
B	(9.15.12.11.12)	B3–A4	6 Eb 0 Pop
		B4–B6	5 non-calendrical glyphs
	. 1	A7	1 kin (sun-at-horizon glyph with coefficient 1 as SS)
C	(9.15.12.11.13)	B7–A8	7 Ben 1 Pop
		B8–B15	15 non-chronological glyphs (coefficient 6 at A9)
	. 3. 2. 7	A16–B16	7 (kins), 2 uinals, 3 tuns (head-variant period glyphs)
D	(9.15.15.14. 0)	A17–B17	3 Ahau 13 Uo
		C1–D2	4 non-calendrical glyphs
		C3	4, modified katun glyph, postfix (damaged; non-calendrical ?; see text)
		D3–D4	3 non-calendrical glyphs

Lintel 3

AA	(9.15.10. 0. 0)	A1–B1	3 Ahau 3 Mol
		A2	Half-katun (half-period glyph, prefixed to head-variant katun glyph–see text)
	2. 2. 2	B2–A3	2 (kins), 2 uinals, 2 tuns (head-variant period glyphs; tun with unusual post fix–see text)
BB	(9.15.12. 2. 2)	B3–A4	11 Ik 15 Chen
		B4–C3	12 non-calendrical glyphs
		D3	4, modified katun glyph, postfix (damaged; non-calendrical ?; see text)
	. 1)	C4	1 kin (sun-at-horizon glyph with coefficient 1 as SS)
CC	(9.15.12. 2. 3)	D4–C5	12 Akbal 16 Chen (coefficients damaged–see text).
		D5–E1	6 non-calendrical glyphs
	3. (0. 0)	F1	3 tuns (abbreviated SS; head-variant tun glyph with unusual postfix; see text)
DD	(9.15.15. 2. 3)	E2–F2	13 Akbal 1 Chen
		E3–G1	15 non-chronological glyphs
		H1	4, modified katun glyph, postfix (damaged; non-calendrical ?; see text)
		G2–G9	15 non-chronological glyphs
		H9	4, modified katun glyph, postfix (non-calendrical ?; see text)

SUMMARY OF CHRONOLOGY (LINTELS 2 AND 3 OF TEMPLE IV)

	Lintel 2					*Lintel 3*			
A1–B1	Date A	PE	(9.15.10. 0. 0)	3 Ahau 3 Mol	A1–B1	Date AA	PE	(9.15.10. 0. 0)	3 Ahau 3 Mol
A2				1/2 katun	A2				1/2 katun
B2–A3		SS	2.11.12		B2–A3		SS	2. 2. 2	
B3–A4	Date B		(9.15.12.11.12)	6 Eb 0 Pop	B3–A4	Date BB		(9.15.12. 2. 2)	11 Ik 15 Chen
A7		SS	. 1		C4		SS	. 1	
B7–A8	Date C		(9.15.12.11.13)	7 Ben 1 Pop	D4–C5	Date CC		(9.15.12. 2. 3)	12 Akbal 16 Chen
A16–B16		SS	3. 2. 7		F1		SS	3. (0. 0)	
A17–B17	Date D		(9.15.15.14. 0)	3 Ahau 13 Uo	E2–F2	Date DD		(9.15.15. 2. 3)	13 Akbal 1 Chen

NOTES ON PARTICULAR GLYPH BLOCKS

A small amount of reconstruction and interpretation is involved in the tabulated "Classification and Chronological Decipherment."

Blocks A2 of Lintel 2 and Lintel 3 (Half-katun glyphs). These blocks are read "Half katun," following in principle the "half-period of a katun" of Thompson (1950, p. 192 and Fig. 32, 53). The half-period glyphs are here prefixes of what look best as baktun heads, with hand for lower jaw,and this puzzled Morley, leading him to the speculation that the main sign was a head-variant ending or completion sign. Thompson shows that the hand may occasionally occur with the katun head, and reading thus makes perfect sense.

In Maudslay's two drawings, the main part of the half-period glyph on Lintel 2 is shown as if it surely had a two-lobed form (see Figs. 22 and 23).The sign surely did not vary significantly from its counterpart on Lintel 3, except that below the "down-balls" superfix there is one ovoid and decorated "bar" instead of three straight and plain "bars."

This sole difference in examples carved at the same time and for the same date is the best possible evidence that what look like "bars" in the half-period glyph are not numerical, as was once thought by Bowditch, and that the number of them probably had no significance .

Block D4 of Lintel 3 (Day Sign coefficient). There is some missing wood between the two dots of the coefficient and the remains of the Day Sign, the left edge of which is missing. Maudslay restores 2 Akbal The control of two SS requires 12 Akbal or a mistaken record. The two beams involved do not appear to fit snugly elsewhere and Morley's suggestion that they should have been spread further apart, making room for two bars, is doubtless correct.

Block C5 of Lintel 3 (Month coefficient). Maudslay's drawings show one oval upper dot and two reconstructed ones of the same size, so that one would read 18 Chen, though 16 Chen is required. Photographs (including Maudslay's) indicate a central element shorter than the top one; this is confirmed by the cast, and the best reading by inspection is the required 16 Chen. Thus there is no reason for postulating mistakes in this inscription.

Block E7 of Lintel 3 ("Axe element" ??). In his *Hieroglyphic Glossary and Index*, Thompson lists this block under "axe element." If present, the axe is not part of the "hand-with-axe" sign noted later in four other blocks.

Blocks C3 of Lintel 2 and D3, H1, H9 of Lintel 3 ("isolated" katuns). The complete glyphs in these four blocks, all with coefficient 4, are considered to have been substantially identical , though only that at H9 is completely preserved. There, by inspection,

the main sign is a grotesque head with nose shaped like a bird's beak, on a "tripod support," and below the prefix of the symbolic form of the katun. There are two elements not expected with a tun or katun head. The first is a "hand-with-axe" sign infixed at the rear of the head. The second is Thompson's Te (1) affix, here a postfix, on the right. Despite this we class H9 as "isolated" katun entry, discussing the matter on pp. 60–62. Here we are concerned only with showing that there are two other such entries on Lintel 3, and another on Lintel 2.

It should be noted that at H9 the base of the postfix is at the level of the base of tripod supports of the main sign–i. e., at the base of the block. Turning to H1 of Lintel 3,the outline of the base of the postfix is fairly clear in photographs, and more so on the cast, though otherwise the right half of the block is split off entirely. The surviving front half shows a grotesque head similar to that of H9, though not identical in all details. Complete identity in equivalent heads is scarcely to be expected. Restoring this head to the same proportions as at H9 leaves room for a lost hand-with-axe infix.

At D3 of the same lintel it is the front of the head which is lost. The other five elements survive completely, or sufficiently for positive identification, as may be seen in Thompson's photograph of a cast. These are coefficient, superfix, tripod support, infix, postfix. Maudslay's drawings are less than perfect.

At C3 of Lintel 2 the loss is similar, but next to the coefficient enough survives to suggest a similar head as main sign (Figs. 22, 23). Again,all the other elements of H9 can be identified with certainty, including part of the axe and the thumb of the hand which holds it, though this is not shown in Maudslay's drawings.

There is no room for doubt that each of these blocks contained the same elements in the same relationships.

INTERPRETATIVE NOTES

Common Elements and inter-relationships of the two texts. Below are tabulated various correspondences showing a high degree of parallelism between the texts on the two lintels; those marked with asterisks were pointed out by Morley, who inferred a "close chronological connection" on the basis of those alone.

GLYPH USAGES IN BOTH TEXTS

Half-period glyph as prefix of period glyph (rare).
Modified katun-sign with postfix and coefficient of 4 (rare).
Sun-at-horizon glyph with coefficient of 1 as SS (rare).
All other period glyphs of head-variant type.

DATE PATTERNS IN BOTH TEXTS

* Same opening tun-end date, fixed as PE.
Three SS numbers between connected dates, leading forward to three odd dates.
* Corresponding odd dates in same tuns, those of Lintel 3 earlier than those of Lintel 2.
* Same 1-day interval between 2nd and 3rd dates.
Non-chronological glyphs after each odd date, none after opening date.

VAGUE YEAR POSITION LIMITATIONS INVOLVED IN CALCULATIONS?

Lintel 2: First and second odd dates entered at beginning and end of first day of year ("Year Bearer").
Lintel 3: All three odd dates in same month of vague year (Chen).

MOON-AGES INVOLVED IN FINDING LATEST ODD DATES ??

Interval between the two latest dates is 237 days, only about .76 day more than 8 average lunations (but no decipherable statement that same-age relationship was noted).

It seems clear that a single priest or group of priests selected six odd dates and, instead of arranging and discussing them in a single series, did so in two series, placing one on each lintel. Being thus located, and with the common departure date stated on each lintel, either text could be read independently, but they could also be easily compared.

Whatever the related problems were, it can scarcely be coincidence that Lintel 3 gives the same number of dates as does Lintel 2, these always lagging behind, but not sufficiently to be in earlier tuns. This is very striking and unusual, whether or not our feeble speculations on some of the factors involved have any validity. The several rare glyph usages common to both texts tend to confirm the idea that they were planned and executed at the same time.

Comparisons with Stela 16/Altar 5 text. The hint of a *recognized* same-moon-age relationship between the two latest odd dates should not be taken very seriously unless it can be confirmed in some way. The age could not have been zero age, a possibility for the earliest odd date in the Stela 16/Altar 5 text, as shown by Long (1940, p. 284), calculating from recorded zero age on Altar K of Copan. Taking Age 13.26 days at the IS base to obtain arbitrary average ages at all four dates we get:

Copan Altar K	9.12.16. 7. 8	29.16 (recorded as zero age)
Tikal St. 16/Alt. 5	9.12.19.12. 9	28.94
Tikal T. IV, L. 3	9.15.15. 2. 3	20.26
Tikal T. IV, L. 2	9.15.15.14. 0	21.02

These average ages are about a half day only from the center of the spread of "Teeple's limits," which cover about seven days of deviation from average, so that as of the Altar 5 date the actual Maya age could have been zero, or a bit further back or forward in their lunation. But the dates on the lintels were surely well short of the completions of the current lunations. This seems to increase the probability that the same-age relationship is a matter of coincidence. On the other hand, various ages may have had significance in special situations.

On Altar 5 the earliest and latest dates, both odd, are at 1 Muluc, the spread being 1.0.4.0, or 28 Sacred Round Periods, as noted by Morley. On our Lintel 2 the earliest date is at half-period, and the latest is an odd date, but again these extremes are at same Sacred Round position, this time at 3 Ahau. The spread is 5.14.0, or 8 SR periods. In the Dresden Codex it is clear that the Maya of the Post-Classic Period were interested in a "Ritual Year" of 364 days (1.0.4), and its 5th multiple, 5.1.0, at which it first makes its round with the Sacred Round Period, 5.1.0 being also 7 SR periods. Clearly this Ritual Year was not involved in the lintel calculations, since the distance between the 3 Ahau entries is 8 SR periods. I think this tends to negate Long's feeling that there must be some non-fortuitous connection between the use of the interval 1.0.4.0 on Altar 5, and its importance as the 20th multiple of the Ritual Year Period in the codex (Long, 1940, p. 286). However, on both Lintel 2 and Altar 5 we seem to have discussions opening and closing with the same Sacred Round Dates.

Note on Date D of Lintel 2. Date D, at 3 Ahau, is at an odd (non-tun-end) Long Count position, with the special quality of being at the end of a uinal. This was inevitable if it had to be at the same Sacred Round position as Date A, since that is at a tun-end. Any odd date at Ahau may be classed as a "uinal-end" date. Nevertheless, if odd dates are admitted as potential dedicatory dates in the Late Period, a uinal-end date such as our Date D, considered as a DD, would seem to disagree with the usual tun-end dedicatory date pattern less drastically than a date not at Ahau. We have a check of sorts on this idea at

Copan. There, six uinal-end dates are given as IS, complete with lunar series (Satterthwaite,1948, Table 1 on p. 492). Doubtless by coincidence one of them(Copan St. 1) is precisely 6 katuns earlier than our Date D. The point to be made is that probably none of these obviously important uinal-end dates at Copan was a dedicatory date. On four of them later dedicatory tun-end dates survive. Thus the mere uinal-end character of Date D on Lintel 2 seems of dubious value as a support for its hypothetical interpretation as an odd dedicatory date.

THE DEDICATORY DATE

Usually a Maya text records a DD meeting the requirements of rules stated and discussed on pp. 49–50, and this is true for all the known stone monument texts of "Late Tikal Monument Period." Their DD's are at tun-ends (Rule 1), and are the only or the chronologically latest dates given (Rule 2). None of the stela texts provide examples of recognized exceptions to Rule 2, but in dealing with the lintels Exception 2 comes into the discussion. This allows one odd date later than the tun-end DD, but less than a year later. In general, one would expect rules valid for the stone monuments to hold for the lintels.

If we apply Rule 1 to the Temple IV lintels we choose 9.15.10.0.0, the only tun-end given, and we find it, fixed as a PE, in the locally dominant position, opening both texts (Dates A and AA). But if we choose this we must modify Exception 2 to Rule 2 drastically, allowing six later odd dates instead of one later odd date, the latest of these more than five tuns later.

Allowing that a DD in the "Late Tikal Monument Period" could be at an odd IS position, this amounts to an exception in which Rule 1 does not apply, but logically Rule 2 would stand, in this case alone. It still implies the habit of looking backward from the present, represented by the DD, in recording other dates. Applying Rule 2 thus, the DD becomes the latest date in both related texts, i. e., 9.15.15.14.0 (Date D). Favoring such an exception, this date is related to the tun-end count by having the same Sacred Round position, 3 Ahau which appeared at the end of the prior half-katun. In this respect Date D differs from the erroneous latest odd date considered and rejected as the DD by Morley. One may also suspect that this latest odd date had some special significance because of its moon-age, since this was the same as, or very close to, that of the latest date on the other lintel (Date DD). However, this may be a matter of mere coincidence.

If we hold to both Rules 1 and 2 because both usually apply (and do apply without known exception on the local "Late Series" monuments), then we must assume that a tun-end DD, later than 9.15.15.0.0, was understood but was not recorded. Under this hypothesis, since in the "Late Tikal Monument Period" there is no evidence of marking odd tuns other than the 13th, one would choose Morley's 9.16.0.0.0 as the unexpressed DD.

The foregoing attempt to apply the recognized rules leads to suggesting that the precise DD of these lintels cannot be specified with complete assurance, but that the DD was almost certainly one of three alternatives:

1:	9.15.10. 0. 0	3 Ahau 3 Mol (???)
2:	9.15.15.14. 0	3 Ahau 13 Uo (??)
3:	(9.16. 0. 0. 0	2 Ahau 13 Zec)(?) (not recorded)

Morley suggested our Alternative 3 with two question marks, but did not rank the alternatives which the question marks implied.

In justifying a preference for the latest alternative DD, a reason of sorts for suppressing

it can be imagined. The calculator desired to emphasize an unusual situation—two parallel calculations covering dates in the last half of the katun which had just ended. This emphasis was obtained by giving the "fix" in the Long Count at the (past) half-katun date, and at the beginning of each text, the usual place for the DD as evidenced by the monuments. The DD, its usual place usurped, was omitted. The forward direction of the count from the half-katun date would make it clear that this was the situation, since nowhere on the Tikal monuments is there evidence of forward counting from a dedicatory tun-end.

Our alternatives are so close together that each may be said to be equally justified by the style date limits, though it happens that the midpoint of the combined style date spread, 9.15.15.0.0, is very close to Alternative 2 (9.15.15.14.0).

If we use the supposedly preferred 9.16.0.0.0 DD in C-14 comparisons, it seems safe to say that this is either correct or else too late by not more than 10 tuns, a maximum error which would be non-significant in such comparisons. In studying the chronology of local building activity, choice among the alternatives might be significant.

It might be argued that 9.15.10.0.0 is too early, because that seems to be the date when the carved lintel of Structure 10 was being placed (see pp. 74–75). But, choosing 9.16.0.0.0 for the Temple IV lintel placements, we have the same date as Stela 20/Altar 8, when, presumably, a twin-pyramid complex was dedicated in Group H. At the least it seems clear that major building enterprises involving three types of structure were in progress at three well-separated locations during the last half of Katun 16.

ISOLATED "BATAB" KATUNS

We have concluded that despite damage to three of them, four glyphs on our lintels with coefficients of 4 were substantially identical, and for convenience will refer to them by block numbers only—C3, D3, H1, H9—without specifying that C3 is on Lintel 2, and the others on Lintel 3. The decipherment "Batab" katuns is based on very recent work by Berlin. Some exposition of his findings, and a review of other examples, seems called for.

We are dealing with isolated records of katuns apparently similar to those with coefficients no higher than 6, such as Thompson discusses for other sites under the label "Ben-Ich" katun, though the "Ben-Ich" prefix may be absent. In Tikal Report No. 4 we used the less restrictive term "isolated" in noting a probable example on Stela 19, and a certain one on Stela 22, in each case without the "Ben-Ich" prefix. Our term is the equivalent of Berlin's "ocioso" ("idle," "useless") for similar entries on Stelae 21 and 5, on the roof comb of Temple VI, and for one of the Temple IV examples, in which we are here particularly interested, i. e., that at H9 of Lintel 3 (Berlin, 1951).

In his new paper on Tikal inscriptions (1958), Berlin adds an example on Stela 16, and accepts the identifications on Stelae 22 and 19, or perhaps he made them independently. Most importantly, he establishes an intimate association between these isolated katun entries and what he suggests is a "Batab" glyph. This is a head with an infixed "hand-with-axe" element and Thompson's "Te(1)" affix as postfix. We shall use "Batab" with quotes, so that if there are readers who do not accept the decipherment the term will still be acceptable as a label of convenience. The "Batab" glyph follows the katun glyph, in the next block— or may substitute for the katun head, the whole expression then being in one block. Berlin made these discoveries after studying all the isolated ("ociosos") katuns at Tikal, but he does not state the total number found. Allowing for four examples at Temple IV there seem to be ten, which we list in three groups, below.

A Coefficient with head-variant katun glyph followed by "Batab" glyph in next block (latter a grotesque head with beak-like nose, hand-with-axe infixed at rear of head, Thompson's "Te(1)" affix as postfix, at right).

Stela 16	C3–C4	3 "Batab" katuns	(9.14. 0. 0. 0)
Stela 21	B1–A2	4 "Batab" katuns	(9.15. 5. 0. 0)
Stela 5	D11–C12	4 "Batab" katuns	(9.15.13. 0. 0)
Stela 22	B8–A9	4 "Batab" katuns	(9.17. 0. 0. 0)

B Coefficient, symbolic katun superfix over "Batab" glyph.

Temple IV, L.2, C3		4 "Batab" katuns	(9.15.15.14. 0)
Temple IV, L.3, D3		4 "Batab" katuns	(9.15.12. 2. 2)
Temple IV, L.3, H1		4 "Batab" katuns	(9.15.12. 2. 3)
Temple IV, L.3, H9		4 "Batab" katuns	(9.15.12. 2. 3)
Stela 19	A9	4 "Batab" katuns	(9.18. 0. 0. 0)

C Coefficient, glyph on tripod support without postfix to right, after "Emblem"; (probably a damaged katun glyph, next glyph destroyed).

Temple VI, L.4–M1		4 "Batab" katuns ?	(9.16.15. 0. 0 ?)

Our "Group A" covers the two-block examples, while Group B covers the one-block recordings of the same elements, other than the katun head. The damaged isolated katun statement on Stela 19 is entered in Group B without question because a re-examination of photographs and a cast shows that there was a postfix of the same outline form as that of the Te (1) affix, and the next block does not contain the "Batab" glyph. Considering the general pattern elsewhere, we seem justified in restoring the lost interior details of the postfix and a hand-with-axe infix. We have confirmation in the fact that Berlin's "Emblem" glyph for Tikal, referred to later, precedes this glyph of St. 19, as it precedes the 4 katuns statements of Stelae 21 and 22. We are following Berlin, except that he did not specify that this is one of the cases where the "Batab" glyph replaces the katun head.

Berlin's publication is preliminary in character, and his principal interest was in identifying "Emblem" glyphs peculiar to particular sites including Tikal. In some, but not all cases, Tikal Emblem glyphs precede "Batab" katun glyphs, forming clauses. He notes that the "Emblem" glyphs, or the clauses which they begin, frequently precede secondary series (which lead to dates given later), but that they also may close an inscription. He draws the tentative conclusion that the relationships are with the prior-stated dates. A check shows that this holds for the isolated "Batab" katun entries when no "Emblem" glyph is present, H9 of Lintel 3 being an example at the end of the inscription. We seem to have a comparable situation in the same text, though apparently with the "Emblem" glyph where C3–D3 are the last of the glyphs between Date BB and an SS leading to Date CC. On the theory that our isolated katuns are associated with the last previously given CR date, in our tabulation we have given the corresponding LC positions of the prior-stated dates.

However this may be, it is clear from the tabulation that the linkage of isolated katuns and the "Batab" glyph may have been a universal phenomenon at Tikal. Our Group C may be necessary only because a "Batab" glyph following the record of 4 katuns at L4 of Temple VI has been destroyed (Berlin, 1951, Figs. 19–20). Obviously the same thing is being said in all the examples of Groups A and B.

Taking H9 of Lintel 3 as an example of Group B, space has been saved by suppressing the katun head—but not the katun superfix which still gives notice that one should read

"4 katuns." The head which is the main sign of the "Batab" glyph has a beaked nose, and Thompson allowed the possibility of Morley's "4 katuns" reading for H9 of the lintel, but expressed doubt because of the infixed hand-with-axe (1950, Fig. 52, caption). Berlin's discovery clarifies the situation. We do not here have a katun head, but still we have an isolated entry of "4 katuns," modified by "Batab" or, if this is questioned, modified in some other way.

Berlin apparently founds his "Batab" interpretation only on the hand-with-axe element, deriving "Batab" from "Baat-hacha." "Hacha" is Spanish for "axe," and "Batab" is Maya for "chief" (Spanish "cacique"). Thompson shows that his Te (1) affix, which seems firmly associated with the hand-with-axe element in this glyph, may represent a numerical classifier, but he believes it was used phonetically for the last syllable of the deity-name "Bolon-Yocte" (1950, p. 56). Before accepting the "Batab" interpretation as established, one would like to see this postfix accounted for in some way, and Berlin does not insist on the "Batab" reading (personal communication).

It will be noticed in the tabulation that we have one record of 3 "Batab" katuns, on the earliest monument, and that all the others are of 4 "Batab" katuns, though they seem to be related to Calendar Round dates in three sequent katuns. Berlin suggests a very plausible explanation which, as I understand him, is as follows. Each numbered "Batab" katun coincided with several ordinary Long Count katuns. There were probably five ordinary katuns in each such "Batab" katun, and the count was probably set so that the third of these longer periods ended at 9.15.0.0.0. When isolated "Batab" katun records were made, unless the associated date happened to be at the end of the "Batab" katun period, the coefficient recorded was that of the current, not yet completed, period. We may add that under these postulates, in mechanical effect if not in Maya concept, the coefficient of a Tikal isolated katun record associated with a date in Baktun 9 indicated in which quarter of the baktun the date falls. Since these dates were already fixed by PE or SS glyphs this information was already implicit; but since IS are lacking in all known cases, it was not actually stated, unless by these "Batab" katun records.

Discovery of additional monuments may provide evidence confirming this theory, or leading to its modification in respect to the length of a "Batab" katun, and/or the setting of these periods in the Long Count. It is proposed for Tikal only, and not for the "Ben-Ich" katuns at other sites, without the "Batab" modifier. Apparently some unknown different principle governed the coefficients of those isolated katun recordings.

Having noted the "Batab" katun theory for Tikal, it is interesting to note also that only at Temple IV do we find more than one example in a text, and that here they are all associated with odd dates. On the stelae all have dedicatory tun-end prior-stated dates, though at least one odd date also is present (in the case of Stela 16 on its associated Altar 5). Note also that on Lintel 3 we have two "Batab" katun records after the same odd date, the last given in the text. The first of these, at H1, is in the exact middle of the long statement following Date DD; the other, at H9, ends this statement, and the text as a whole. Here, if there is any relationship between the isolated katun entries and recorded CR dates, both must be related to the same date, Date DD. The final entry, one supposes, is a repetition serving the second half of the final statement which, as a whole, is related to Date DD.

The fact that several "Batab" katun records may appear with closely spaced odd dates in a single text, as well as with dedicatory tun-end dates, tends to confirm, I think, the idea that the number of a still current group of katuns was recorded.

"EMBLEM" GLYPHS

Berlin uses "Emblem" as a term for glyphs restricted to particular sites, as already mentioned. The main sign varies from site to site, but with two sorts of affixes which are constant—the "Ben-Ich" affix and a group of supposedly aquatic affixes or a head like that of the numeral 9 (1958, Fig. 28, Line 1). The aquatic affixes all involve a line of dots. For Tikal there is a symbolic type of main sign labeled T–1, and a head-variant with parallel lines labeled T–2 (Line 2). The head-variant illustrated is difficult to recognize as such but is obviously copied from C3 of Tikal Lintel 3, forming a clause with the 4 "Batab" katuns at D3. It appears as a more realistic animal head before the 2–block 4 "Batab" katun record of Stela 21 (Line 4). The affixes are the same in each case, and evidently the head-variant form T–2 can vary widely. Since T–2 is defined as an animal head, the other three "Batab" katuns seem not to be parts of the clause headed by the "Emblem" glyph. The block before C3 of Lintel 2 has the aquatic prefix, but a human head as main sign, and that at H9 also has a human head, with a destroyed prefix. The block preceding H1 is symbolic, but it is not the T–1 variety of the "Emblem" glyph.

UNUSUAL POSTFIX WITH PERIOD GLYPHS

Thompson calls attention to an "unusual" postfix with the tun-glyphs at A3 and F1 of Lintel 3 (1950, Fig. 52). It looks rather like a combination of the segmented "body" of the centipede affix and the inverted Ahau affix. In both cases it appears with the highest term of a secondary series, but the second SS is abbreviated by omission of the lowest terms, at zero.

There is a correspondence between SS and PE expressions when the latter are used to mark tun-katun "anniversaries," in that in both cases, if there are tuns and katuns, the tuns come first, the higher-valued katuns second. So, if this affix may occupy the place of the usual SS postfix in the highest term of an SS, whether abbreviated or not, one would not be surprised to find it with the katun in an "anniversary" PE statement. In fact, it seems to occur, in variant form, with the katun in the phrase "Completion of fifth haab, 1 katun" on Stela 3, Piedras Negras (Thompson, 1950, Fig. 33, 28; Fig. 50, 7, at E4). If the identification of the supposed centipede element is somewhat doubtful, the inverted Ahau at the left is not.

Although SS are normally stated in rising order of period values there are exceptions to this rule. At H7–G8 of Temple of Inscriptions, Palenque, one finds the "Inverted Ahau-centipede" sign postfixed to a record of 1 pictun followed by 8 kins. Long interpreted this as an abbreviated 6-term number with "interior" zero terms omitted (1923, pp. 67–68). Reading it thus, 1. (0.0.0.0).8, it can be properly classified as an SS leading back from the date which precedes it, 5 Lamat 1 Mol, to a suppressed anterior date 4 Ahau 8 Cumku, the base for forward counting of most Initial Series numbers. Such a reading and classification are in line with the use of the postfix at Tikal.

Acceptance of this interpretation has theoretical implications not to be discussed here, and it should not be accepted without reading Thompson's views on this part of the Palenque text (1932, table on p. 393, where the 1 pictun entry at H7 is omitted; 1950, p. 314, where it seems to be referred to but is not linked with the 8 kins as in Long's version).

LINTELS 2 AND 3 OF TEMPLE I (STR. 5D-1)

Location:	*Lintel 2:* 4 beams (*a–d*) originally spanned middle (interior) doorway; 2 outer beams (*a–b*) still in place; see this report. *Lintel 3:* 5 beams (*a–e*) originally spanned inner (interior) doorway; see this report.
Dedicatory Date:	Suggested limits 9.13.3.0.0–9.14.0.0.0, the former preferred; see text.
Style Date:	*Lintel 2:* 9.17.10.0.0 ± 2 katuns; *Lintel 3:* 9.16.0.0.0 ± 2 katuns; combined extremes 9.14.0.0.0–9.19.10.0.0 (Revised Proskouriakoff estimates; see Table 3).
Condition:	Large areas of both lintels missing, but probably no lost blocks; CR date on Lintel 2 largely destroyed; CR dates on Lintel 3 legible but not fixed in Long Count by recognized glyphs.
Photographs:	*Lintel 2:* Fig. 12 a of this report. *Lintel 3:* Figs. 13–16 of this report; Maudslay, 1889–1902, Vol. III, Pl. 71.
Drawings:	*Lintel 2:* Fig. 12 c of this report; *Lintel 3:* Maudslay, Vol. III, Pl. 74; Beyer, 1943, Fig. 1.
Other References:	This report; Morley, 1937–1938, Vol. I, pp. 358–359; Beyer, 1943, pp. 338–343.
Carved Areas:	Undersides only, so far as known.
Material:	Wood (zapote).
Dimensions:	See this report, Table 2.
Orientations:	Base of designs to south, principal figures faced entrance, to observer's right.

GENERAL REMARKS

We have noted that beams of Lintel 3 of this temple have only recently been proved to be such (p. 47). This greatly enhances the importance of the dates on the beams, for Temple I faces west on the main plaza and close to its north terrace, both with many stone monuments, and temple, plaza, and terrace are being intensively studied by excavation. Surviving beams of Lintel 2, still in place, have been adequately recorded for the first time, so that one may now deal with two associated and presumably contemporaneous wooden lintels, as at Temple IV.

The temple has been selected for consolidation, repair, and partial restoration, and replicas of what survives of the Lintel 3 beams have been installed in the building. At the time of writing, samples from this lintel and from vault beams are being dated by the C–14 method—an additional reason for desiring a firm dedicatory "contemporaneous" date for the lintels. Below we conclude that this was probably 9.13.3.0.0, but allow 9.14.0.0.0 as a possible late and limiting alternative. If this small leeway for uncertainty is accepted as sufficient, C–14 results here may be used in checking both "early" and "late" correlation hypotheses. One expects that results here will favor the same correlation as those for samples from Temple IV and Structure 10.

COMMENT ON THE INSCRIPTION

For Lintel 2 we depend on Coe's photographs and drawing (Fig. 12), and for Lintel 3 mainly on Maudslay's published photograph and drawing cited in the synoptic heading. But for checking Lintel 3, new photographs of Beams *b* and c, now at the Museum für Völkerkunde, Basel, and of Beam *a*, at the British Museum, London, are available. These were obtained by Shook in 1956; selected negatives are printed in our Figs. 14–16 while the whole lintel is shown in Fig. 13.

Inevitably one compares these two lintels at Temple I with the more completely surviving ones at Temple IV, noting likenesses, and also differences. Although here the mean style dates for the two lintels differ by 1 1/2 katuns, we assume strict contemporaneity for the two lintels, as at Temple IV, where the style date difference is only a half-katun.

Both designs here are like that of Lintel 2 of Temple IV in that the principal human figures, seated, are in profile, with giant figures behind them—on Lintel 3 a jaguar, on Lintel 2 a serpent (see p. 39). Unfortunately here the left halves of both designs are missing, and these giant animal gods must be largely reconstructed.

MISSING GLYPH PANELS???

Both carved panels are comparatively high and narrow, so that reasonable reconstructions of the giant beasts behind the seated priests must use all—or certainly most—of the available now blank spaces (Figs. 12 and 13). One may compare the giant jaguar depiction on Stela 10, Piedras Negras (Maler, 1901, Pl. 19).

Fixing attention first on Lintel 3, it is a fair conclusion that there was no large and now lost glyph panel at upper left, balancing the known one of 48 blocks at upper right. We have confirming evidence in Morley's failure to mention glyphs on the left beam (Beam e) which he saw lying on the floor, complete (1937–1938, Vol. I, p. 349). It is not clear how much of the carved surface of this beam survived, and nothing is said by Morley about the design on it; but the height of the design panel is given, implying survival of the carved surfaces near top and bottom, at least. In 1947, Coe saw the lower portion of this beam only, still in the temple, and quotes Maler as reporting "The figure on it shows a handsome profile." (p. 26 and Fig. 13e). This seems hard to visualize, but confirms that whatever was on this beam did not include glyphs.

It appears to be reasonably certain that Lintel 3 of Temple I had one panel of glyphs only, at the upper and right margins of the complete design, instead of at the upper and left margins, as on Lintel 2 of Temple IV. Since the principal figures in these two temples face in opposite directions with respect to the observer, it results that both not only face toward the temple entrance, but also in the general direction of the single inscription, not away from it.

Morley arrived at an erroneous total of glyph blocks for both lintels of Temple IV, "not counting a few more possible glyph-blocks in the last two columns." The columns referred to can only be E–F of our panel on Lintel 3 of Temple I, and we must ask whether there may not have been a now lost additional date, possibly the dedicatory date. Close examination of photographs as well as the cast gives a negative answer. There is still a small but definite remnant of plain border below the prefix at F12, showing that this was the closing block (Figs. 13, 14). Were it not for this, the arrangement of Fig. 13 would provide room for ten or a dozen hypothetical lost blocks. Relying on it, we conclude that all blocks on Lintel 3 are accounted for.

Turning to Lintel 2 of Temple I, if there was only one glyph panel here also, again the priest faces toward the only inscription. There is, however, a difference. There are only 7 blocks, compared to 48; and the smaller glyph panel is assigned an interior position within the carved panel as a whole, before the face and lower part of the headdress of the priest. For so small a text this is a visually more important position than would have been the upper right corner, where the whole panel would be far removed from the center of interest, the seated priest. The blocks are at the same scale as those on Lintel 3, and there is really no compelling reason to suspect a lesser importance for this text. It seems probable that no glyphs have been lost on the left, though it might be argued that, with one known small panel, another small panel may have been worked in at the upper left or elsewhere in the missing area.

We conclude that in all probability all blocks on both lintels are accounted for; but that the possibility of a missing small panel on Lintel 2, first reached after entering the building, cannot be absolutely excluded.

RELATIONSHIPS OF THE TWO TEXTS

We have no chronological parallelisms between the two texts, as at Temple IV, and may postulate either that they were read independently, or that one passed from Lintel 2, with the opening date of a continuous series, to the dates on Lintel 3. Dates and blocks are lettered independently, and on the assumption that none are missing.

Lintels 2 and 3 of Temple I: Glyph Classification and Chronological Decipherment

(Order of reading: left-right and downward in double-column except for downward in single column portion of Lintel 2 panel. Number of blocks on Lintel 2: 7; on Lintel 3: 48)

		Lintel 2	
A	(LC position unknown)	A1–B1	CR date in Yaxkin (remnants of Yaxkin glyph at right of B1–see text)
		A2	Destroyed (by position might be PE glyph)
		B2	Coefficient 17–19, main sign mostly destroyed (but position might be PE glyph–see text)
		B3–B5	3 non-calendrical glyphs
		Lintel 3	
A	(9.13. 3. 0. 0)	A1–B1	9 Ahau 13 Pop
		A2	Unusual "Yax-double-Cauac" glyph (implies PE ?; see text).
	7.18	B2	18 (kins), 7 uinals (symbolic period glyph)
B	(9.13. 3. 7.18)	A3–B3	11 Eznab 11 Chen
		A4–B6	6 non-calendrical glyphs
	(2. 0)		Suppressed SS
C	(9.13. 3. 9.18)	C1–D1	12 Eznab 11 Zac (month sign damaged)
		C2–E7	23 non-calendrical glyphs (2 coefficients at E1, 1 coefficient at E4)
	– 13.10. 2	F7–E8	2 (kins), 10 uinals, 13 tuns (symbolic period glyphs; bars and 2 dots of tun coefficient lost–see text)
D	(9.12. 9.17.16)	F8–E9	5 Cib 14 Zotz (month coefficient recontructed–see text)
		F8–F12	7 non-calendrical glyphs

SUMMARY OF CHRONOLOGY (LINTELS 2 AND 3 OF TEMPLE I)

A1–B1	Date A	(PE)	(9.13. 3. 0. 0)	9 Ahau 13 Pop
A2				("Yax-double-Cauac" glyph)
B2		SS	7.18	
A3–B3	Date B		(9.13. 3. 7.18)	11 Eznab 11 Chen
			(2. 0)	(Suppressed SS)
C1–D1	Date C		(9.13. 3. 9.18)	12 Eznab 11 Zac
F7–E8		SS	– 13.10. 2	
F8–E9	Date D		(9.12. 9.17.16)	5 Cib 14 Zotz

DATE ON LINTEL 2

All Late Tikal Period precedents on stone or wood lead one to expect a date on this lintel, and in the opening position of the glyph panel. They also call for reading in double column where this is possible. Though A1 is destroyed, enough survives at the extreme right of B2 to show there was a symbolic winged kin sign with a superfix which can be reconstructed as the Yax prefix. These remnants, in expected position, remove any doubt that this panel opened with a CR date, and that it was at some position in Yaxkin.

In the "Classification" table we note that, by position, this date might have been declared as at a period end by the following two glyphs, A2–B2. This hypothesis calls for a lost ending-sign at A2, and a period glyph with coefficient at B2, conforming to the pattern on Stelae 16, 22, and 19, and (doubtless) on Stela 21. It is very intriguing, for enough survives at the extreme right of B2 to show there was a coefficient of 17, 18, or 19 (3 bars and a dot at extreme right). Under this hypothesis we are limited to two sequent odd tun-end dates, 9.11.18.0.0 5 Ahau 18 Yaxkin and 9.12.19.0.0 1 Ahau 19 Yaxkin. There are two reasons for discarding the hypothesis. The B2 glyph was certainly not the symbolic type of tun-sign, and only symbolic period glyphs were used on the associated Lintel 3. Further, the surviving remnants do not agree with recognized forms of the head-variant tun glyph. As Coe pointed out to the writer, at upper right is an ear of the form seen with a non-calendric "Xul" animal at G5 of Lintel 3 at Temple IV. Below this in each case, an "ear plug" consists of the Kan Cross sign (Fig. 13b). As to the coefficient, Stela 12 provides a local precedent for a high coefficient with a non-calendrical glyph, though in the "Early Tikal Monument Period." Almost certainly this block should be shifted to the definitely non-chronological category.

There remains the possibility of a tun-end declaration at the wholly destroyed A2 only. On Stela 5 the 13–tun position is given immediately after the month sign, without ending sign. On Stela 20 the katun position is given immediately after the month sign, though in that case it is followed by a surely redundant "end-of-a-tun" glyph. Though here any evidence on the question is lost, there are reasons for suspecting that the Yaxkin date was actually at a tun-end, though the matter is complicated by ignorance as to whether we have two chronologically independent texts on the two lintels, or a continuous series of dates starting on Lintel 2.

Let us first consider them as independent texts. If the Yaxkin date was an odd one, the Lintel 2 text is unique among those of the "Late Tikal Monument Period" in failing to record a tun-end (barring an improbable lost panel on this lintel). Now, if we assume a single continuous text, the argument loses some of its force, for Stela 5 opens with an odd date, and then counts forward to a dedicatory tun-end. However, the dominant "Late Tikal Monument Period" pattern is to open with a dedicatory tun-end, and then to pass backward to an earlier date or dates. Assuming such a pattern here, we have a precedent involving two

monuments in Stela 16/Altar 5. Here there is no SS to take us from one lintel to the other, but neither was the presumed SS connecting the dates of the stela and altar recorded—and Lintel 3 here shows that at least one SS was suppressed.

Our conclusion is that the Yaxkin date of Lintel 2 may have been at an odd LC position, but, alternatively, it may well have been at a tun-end. If such, by position alone one would suspect it to be a dedicatory tun-end. This possibility needs to be considered, though it is rejected later on (see pp. 70–71).

DATES AND SECONDARY SERIES ON LINTEL 3

As has been noted earlier, Morley erroneously treated this glyph panel as a second one on Lintel 2 of Temple IV. Consequently the four dates and connecting SS in our tabulations, but not the LC positions for them, follow the last part of Morley's summary for Lintel 2 of Temple IV (1937–1938, Vol. I, p. 359). He allowed for supposedly lost but actually non-existent Columns E–F in the actual Temple IV panel, starting with Column G for the panel with which we are here concerned. They correspond as follows:

Morley:	G H I J K L	(as if on Lintel 2 of Temple IV)
Lintel 3 of Temple I:	A B C D E F	

A note on his readings follows:

Reconstructions of Dates C and D and SS between them. Morley's reconstructions are followed in our tabulations. He showed that they are mandatory, but we can arrive at them a little more simply. Damage to the month sign of Date C is unimportant for the coefficient and Zac prefix are unaffected. The legible kin coefficient of the SS requires counting backward to Cib, the 2 days alone reaching 10 Cib; the legible 10 uinals take us to the recorded 5 Cib; the only tun value possible (other than zero) is 13 tuns, reaching an earlier 5 Cib, and inspection shows a surviving dot in the tun coefficient. Counting the mandatory 13.10.2 back from the sure 11 Zac of Date C requires 14 Zotz for Date D, though both bars are lost, and one of the dots seems to be damaged or oversize in the photographs.

The only possible leeway for theoretical manipulation is supplied by suppression of an SS connecting Date B with Date C. The mere fact of its suppression seems a sufficient guarantee that this was understood to be the short forward minimum distance 2.0, as assumed by Morley.

LONG COUNT POSITIONS OF DATES ON LINTEL 3

Reference has already been made to Beyer's shift of Date A from Morley's 9.15.15.13.0 position to 9.13.3.0.0. It is clear that if we follow Beyer for Date A we must shift the other dates accordingly, and this is done in our tabulations.

Beyer tells us that Seler had already suggested Morley's position for Date A, which we may distinguish as "late," and that Spinden once chose the early position because this is at a tun-end, but that he later preferred the late position because the early one failed to give desired astronomical results in his correlation (Beyer, 1943, p. 340).

The reason different choices were possible is the lack of a recognized PE glyph or glyphs after the 9 Ahau 13 Pop (Date A). Beyer drew the following glyph, at A2, from the original in Switzerland. The main sign is the double-Cauac used in symbolic glyphs for the baktun and higher periods; a superfix seems identical with that of the Initial Series Introducing Glyph; there is a Yax sign as prefix (mis-drawn in Maudslay's Pl. 74). Considered separately, all these elements may be "calendrical," but the meaning of the combination is un-

known. Beyer noticed this same "Yax-double-Cauac" glyph following the same CR date on Naranjo Stela 29, and made the obvious inference that, with the same thing being said about the same CR date at two sites, the same LC position must apply to both. At Naranjo the position is clearly fixed at 9.13.3.0.0.

Behind the reasoning is the fact that one has no cause to suspect that a given CR would again be recorded one CR period later—and the logical supposition that if, nevertheless, the Tikal recording was an exceptional "CR anniversary" some different unusual glyph would be expected, not the same one.

We may add that at Naranjo the tun-end nature of the LC position was clearly in the recorder's mind, for the tun-end glyph appears between the date and the Yax-double-Cauac glyph, and it was not there necessary to fix the date. The text on Naranjo Stela 29 opens with a locally important odd IS; SS lead forward through two odd dates to the 9 Ahau 13 Pop date; and a final SS of 1.0.0.0 leads thence to the final and dedicatory date at 9.14.3.0.0. I think it follows that at Tikal, where the tun-end glyph is omitted, its meaning may have been implied by or included in that of the Yax-double-Cauac glyph. Thus it is not safe to assume there was no fix in the LC on the Tikal lintel.

This suggestion should not be made, however, without calling attention to an apparent record of the same unusual glyph during the "Early Tikal Monument Period," at C3 on Stela 25 (Tikal Report No. 4., p. 115 and Fig. 23). If correctly identified, here it is in the middle of a long text; possibly it follows immediately after an SS and certainly it is not closely associated with a date by position. But one wonders if it could refer back to the opening DD, fixed by IS at 9.4.3.0.0. Whether by coincidence or not we seem to have this unusual glyph in three texts at two sites, all three showing special interest in Tun 3 of a katun. At Tikal these 3d tuns are at 9.4.3.0.0 and 9.13.3.0.0 while at Naranjo they are at 9.13.3.0.0 and 9.14.3.0.0.

Beyer seems to assume that Date A, on the Tikal lintel, at his and our LC position, was a Dedicatory Date. Later we conclude that this is probable, and that 9.14.0.0.0 is as late an alternative as one ought to consider. Thus, if the "early" positions are correct there was a sizable time-gap between placement of these lintels of Temple I and those of Temple IV, and any differences tend to confirm the early LC positions at Temple I. Beyer noted such differences in recording the month Chen, and in the uinal glyph. Expanding somewhat, these may be summarized as follows. At Temple I the symbolic forms for all calendric signs are used except in the case of the month Zotz, for which no symbolic form is known. At Temple IV the three records of Chen are the head-variant or personified type, while the single Chen at Temple I is geometric or symbolic, like month signs other than Chen at Temple IV. Thus, at that temple only, Chen seems to have been singled out for personified depiction. At Temple I, not only the uinal sign, but also the tun-glyph is given in symbolic style; at Temple IV both these signs, and the katun glyph as well, are shown only in the personified style.

Another difference tending to confirm a substantial interval between the DD's of the two sets of lintels is an obvious difference in the masonry of the two buildings. Merely casual observation shows that the facing stones of the lower zone at Temple I are very much smaller than those at Temple IV. The masonry of Temple I appears to be of the "small block" type described at Structure 93, another temple, by Shook (1951, p. 30 and Fig. 24).

Beyer notes admittedly speculative attempts of Maudslay, Spinden, and Morley to arrange the "great" temples in chronological sequence, and that his epigraphic conclusion disagrees with Spinden's sequence, which places Temple IV earlier than Temple I because

of its smaller proportion of room space (Spinden, 1913 and 1957, p. 170). Spinden noted that his sequence was only a suggestion, and that "the size and character of the roof structures may explain the differences in floor space in the various temples rather than real advance in the building art." The present epigraphic dating shows the wisdom of his caution. It might still be argued that erection of an enormous roof comb, even at sacrifice of room space, might have seemed to the contemporary Maya to be a "real advance in the building art."

We close this part of the discussion with reference to a stylistic likeness in coefficients at the two temples. This is the unusual placement of two dots at center, flanked by crescentic "fillers" at the extremes. Morley noted this at A3 and A16 of Lintel 2 of Temple IV, and also at his L7 for that lintel, now F7 of Lintel 3 of Temple I, and one CR period earlier. Thus this stylistic detail must be given some time depth, if the earlier position is an approximately contemporaneous one. Looking for confirmation, we find this unusual use of fillers in the month coefficients of the earliest and latest of the odd dates on Altar 5, the dates being 1 Muluc 2 Muan and 1 Muluc 2 Kankin (Morley, 1937–1938, Vol. I, p. 339; Tozzer, 1911, Pl. 28). There is no reasonable doubt about Morley's placement of these at 9.12.19.12.0 and 9.13.19.16.9, the latter only 1.11 days before the DD on the associated monument, Stela 16, at 9.14.0.0.0.

Everything points toward the correctness of the LC positions in our tabulations and seems to justify their use without question marks.

THE DEDICATORY DATE

Although Date A of Lintel 3 was undoubtedly at Beyer's LC position for it, the tun-end at 9.13.3.0.0, taking it as the contemporaneous DD, is a question which requires review, if for no other reason than that we now know something of the accompanying Lintel 2, and should consider that one DD applied to both lintels. The question is considered in the same manner as at Temple IV, keeping in mind the usual rules and exceptions noted on pp. 49–50 and local Late Period date-recording patterns on the monuments.

Recording the DD at the beginning of the short text on Lintel 2 would be in line with expectations, especially if the reader was expected to pass directly to the panel of Lintel 3, as one probably passed from the panels on Stela 16 to the earlier dates on Altar 5. However, this date on Lintel 2 was in the month Yaxkin, and if we suppose it was at a tun-end and the latest date on both lintels (Rules 1 and 2), it can be no earlier than 9.15.11.0.0. Such a reconstruction involves a gap of more than two-and-a-quarter katuns between the latest of the Lintel 3 dates and the DD, a highly improbable situation. It also ignores a certain amount of cited evidence for a substantial difference in the contemporaneous dates at Temples I and IV. As a tun-end date closer to those of Lintel 3 the limits are 9.11.18.0.0–9.12.1.0.0, with the katun-end 9.12.0.0.0 one of the possibilities. Any of these is earlier than the tun-end 9.13.3.0.0 on Lintel 3, not later as required by Rule 2. We conclude that the Yaxkin date was not the DD. Though it may have been at one of these earlier tun-ends, there is no longer any particular reason for thinking so.

Considering the text of Lintel 3 as an independent statement which included the DD, Date A is in a position where the DD might be expected. It is at a tun-end as required by Rule 1, and this may have been actually implied by the Yax-double-Cauac glyph, with suppression of the end-of-tun glyph used at Naranjo. Though DD's at odd tun-ends are very rare, we have a precedent in the local "Early Series," also at a Tun 3 (Stela 25), while Naranjo marked the Tun 3 at 9.14.3.0.0 with two stelae (Stelae 29 and 30), reaching back on one of

them to our Tun 3 at 9.13.3.0.0 as if it also had been a date of special importance. At Tikal also this date is not the latest one given, but it fails to be such by less than a year. There are two slightly later odd dates instead of only one—apart from this, Exception 2 to Rule 2 could apply. The case for 9.13.3.0.0 as the DD seems to be very strong.

However, if we expand Exception 2 to allow two slightly later odd dates, we have an unexpected feature tending to cast doubt on this minor adjustment of the rule. Usually, where Exception 2 applies, the latest odd date is the last date given, though occasionally the final count is backward from the latest odd date to the dedicatory tun-end itself, which is then the last date given. Here the final count is backward to the earliest date in the panel, an odd one and very likely the earliest date on both lintels. Seeking to reconcile this with our modified Exception 2, we may imagine that the DD and the slightly later "future" dates had to be kept together, while the dominant local pattern called for opening the text with the DD. In that case a single count back to a past date would have to come last in the text. Such single counts backward, though directly from the DD, were on Stelae 21, 22, 19, and probably on Stela 16/Altar 5.

The case for 9.13.3.0.0 as the DD still seems good, but not entirely beyond question. This being so, it seems safest to allow for a now lost DD on Lintel 2, though this seems improbable, or alternatively for suppression of the DD, as may have been the case at Temple IV. There is here no reason for suspecting that the latest recorded odd date was the DD, and the end of the current katun seems a fair alternative guess for the DD, and a highly probable late limit for it:

1:	9.13.3.0.0	9 Ahau 13 Pop	(?)	
2:	(9.14.0.0.0	6 Ahau 13 Muan)	(??)	(not recorded).

It must be conceded that the Proskouriakoff style date limits do not confirm these epigraphic limits, as the situation of Temple IV would lead one to expect. Only the later epigraphic limit makes contact with the earlier of the two style date limits, hence with the combined limits, and even this would doubtless lie before an early limit based on a single curve for the combined traits of both lintels. However, the style date limits are the minimum $\pm$2 katuns and they are not absolutes. The amount of potential "stretch" necessary to reconcile them with both of the epigraphic limits does not, I think, justify serious doubt respecting the latter.

As to the early alternative DD, this conclusion varies from Proskouriakoff's opinion when she supplied us with her results, which we quote with permission: "The graph for Lintel 2 of Temple 3 is not very satisfactory and I think the central date may be somewhat late, but the more flamboyant scrolls and featherwork do indicate that that and the lintel from Temple I may be a little later than those from Temple IV. I don't think any of them are earlier than 9.15.0.0.0 but, to be perfectly sure, one might extend the early limit to 9.14.0.0.0." This concedes that systematically arrived at limits may on occasion have to be expanded, and one has no dependable measure of the amount of stretch necessary "to be perfectly sure."

A choice between the two alternatives could have little effect on conclusions respecting the Maya—Christian correlations based on C—14 results. Either alternative implies extensive constructional activity at two locations during Katun 14. The earlier preferred alternative makes the dedication of the Temple I lintels (before the building was completed) less than a katun before dedication of Stela 16/Altar 5 and, presumably, completion of the associated twin-pyramid complex. The later alternative places the two dedications at the

same katun-end, 9.14.0.0.0, with completion of the temple building still in the future.

THE CARVED LINTEL OF STRUCTURE 10 (STR. 5D-52)

Location:	Five beams (a–e) originally spanned central interior doorway on the first floor of upper of two palaces comprising Maler's "Palace of Five Stories" and called "Structure 10" by Tozzer; the doorway is in the "third story" of Maler and Tozzer. For other details see this report.
Dedicatory Date:	9.15.10.0.0 3 Ahau 3 Mol (as in Morley).
Style Date:	9.16.10.0.0 ± 3 katuns (Proskouriakoff's revised estimate; given as 9.16.0.0.0 ± 2 katuns in Proskouriakoff 1950).
Condition:	Areas missing, no lost blocks, glyphs damaged but reading of date certain.
Photographs:	Figs. 36, 37a, b of this report; Morley, 1937–1938, Vol. V, Pl. 73a.
Drawings:	Fig. 37c of this report; Morley, Vol. V, Pl. 8h
Other References:	This report; Maler, 1911, pp. 15–18; Tozzer, 1911, pp. 111–113; Figs. 22–24 and Pl. 8, 1; Kulp, Feely and Tryon, 1951; Shook, 1951, p. 21; Satterthwaite, 1956.
Carved areas:	Underside only, so far as known.
Material:	Wood (zapote).
Dimensions:	See report, Table 2.
Orientation:	Base of the design to the west, principal figure facing entrance, to observer's left.

GENERAL REMARKS

We retain the "Structure 10" label for this lintel because of its use in prior publications. Tozzer applied it to Maler's "Palace of Five Stories," giving a plan of the so-called 1st and 3d stories, another of the 2nd and 4th stories, and a cross-section through all five "stories" (1911, Figs. 22–24). The identifiable walls and rooms in these figures pertain to Structure 5D-52 of the new Tikal Project small-scale map, which does not attempt to show details.

The use of a single structure number should not obscure the fact that two potentially independent palaces are covered by it, one set behind the other at a higher level. Tozzer distinguished the upper palace in his text, calling it "the main structure" and saying "it is a unit ...it is a detached building ...it faces on the south and there is no entrance to the building from the square on the south side of which it stands." The cross-section indicates that access was from an esplanade which perhaps was in part formed by the roof of the lower building, a two-story one.

We shall here speak of "lower" and "upper" palaces as components of the complex covered by "Structure 10" and "Structure 5D-52." When we make this distinction the so-called third and fourth stories become the first and second stories of the upper palace. The so-called "fifth story" is not a third story of this building, but a roof comb (Shook, 1951, p. 21, noting a similar early misconception at Structure 27).

On both floors of the upper palace a medial wall forms front and rear galleries or rooms. The carved lintel spanned an axially placed doorway through the medial wall on the first story. It was doubtless directly behind a doorway in the now collapsed facade. This

axial-interior placement corresponds to the locations of all carved lintels in the temples, but most closely to that at Temple III. There also, one could not have two associated interior carved lintels, one behind the other.

In the temples the rule seems to be that lintels of facade doorways were never carved. Applying it here we have a very high probability that there was only one carved lintel in the entire building—over the only centrally-placed interior doorway on the first floor.

The general character of the design and of the inscription corresponds to that of the temple lintels and stone monuments, and although this one is in a palace, a building-type thought by some to have been domiciliary in function, the "contemporaneous" dedicatory nature of the single date given has not been questioned. One may argue that presence of this lintel in a palace is good evidence for non-domiciliary function.

The available record of this lintel has been greatly improved by Coe, who made a series of variously lighted photographs of two of the beams now in New York, some of which appear in Figs. 36, 37 a, b, and the very careful drawing of Fig. 37 c, based on the photographs. These lead to some discussion below concerning Morley's reading of the date as a dedicatory one at 9.15.10.0.0, but this is confirmed, not questioned.

A sample from one of the New York beams has been dated by the C–14 method by Kulp, who obtained A. D. 481 ± 120 years. This was the first such result which raised doubts as to correctness of the "11–16" correlation. That of Libby, for Temple IV samples, was noted on p. 54. As of the time of writing Kulp's result is also being checked at the University of Pennsylvania C–14 laboratory, using another sample from the same beam.

It is worth noting that, as at the temples, a dedicatory date for the lintel cannot very well be regarded as dedicatory for the whole building. In this case a very large part of the total effort on the upper palace came after the placement of the lintel.

COMMENT ON THE INSCRIPTION

NO MISSING GLYPH BLOCKS

Where, as here, there are completely missing areas, one wants to know if glyphs have been lost. Coe and Shook review the somewhat confusing history of the beams of this lintel, bringing it down to date, with significant new data (pp. 40–42). It may be taken as certain that two beams were removed by three named vandals before Maler's time. These must have been Beams *a* and *b*, of Fig. 36, the "outer" ones, because on this side only, fallen debris made them the easiest to get at, and Morley noted the next two, Beams c and *d* as "outer" ones in 1914. The early vandals had to remove Beam *a* in order to get at Beam *b*. Since Beam *a* is still at the spot, complete, it was evidently discarded. On the other hand, they reduced the weight of Beam *b* by cutting off the butt ends, and presumably carried the rest of this one beam off, though Maler understood that two had been taken away. The obvious conclusion is that Beam *b* was valued because it was carved, and that Beam *a* was discarded because it was plain.

One can only guess at the design on this Beam *b*, but it provides room for postulating a lost column of glyphs to the left of Column A, so that two instead of one column would extend below the others (Fig. 37 a, c). This hypothetical possibility may be rejected, because Column A must be read vertically, and cannot be the second of two columns to be read in double-column order. Two vertically read columns side by side would violate the rules.

In Fig. 36 it is suggested that Beam e, also missing, provided a wide plain border area on the right, balancing the known one on the left. This requires that the rear of the chief

priest was cut off by the border, as are the subordinate figures on the Temple III lintel (Fig. 18). If this reconstruction is wrong, one must assume the space was used to complete the figure of the priest.

The conclusion is that all blocks are accounted for. As at the temples, the chief figure faced the entrance, looking in the direction of a glyph panel, in this case the only one.

Carved Lintel of Structure 10: Classification and Chronological Decipherment

(Order of reading: Downward in Column A; presumably left-right and downward in double column thereafter. Number of blocks: 10)

(9.15.10.0.0)	A1–A2	3 Ahau 3 Mol (damaged, coefficient at A1 restored after a presumed lost prefix; presumed lost affix after month coefficient at A2–see text)
	A3	Half-period (non-fused type, probably with lost shell prefix–see text)
	A4–A6	3 destroyed glyphs, presumably non-chronological
	B1–C1	2 non-chronological glyphs
	B2	1 destroyed glyph, presumably non-chronological
	C2	1 non-chronological glyph

THE DEDICATORY DATE

The text is covered by Morley (1937–1938, Vol. I, pp. 341–342, with drawing of A1–A3, and photograph of Beams *c–d* in V, Pl. 8h, and 73a). We follow him in reading the single date as 9.15.10.0.0 3 Ahau 3 Mol, but in the "Classification" table add some notes which require explanation. Morley's drawing of the three opening glyphs was apparently made at Tikal, when the two beams were in place; the photograph must have been made after their removal to New York. There are some discrepancies between Morley's drawing and that of Coe in our Fig. 37c which cannot be accounted for by additional damage in transit to New York. Parts of these glyphs were undoubtedly in bad shape even before Maler's time.

The two drawings agree in placing three dots of the month coefficient so that the left margin thus established requires a prefix before the little-damaged cut-off completion sign at A3. Morley fills this space with a bracket, Coe merely showing top and bottom traces of some element. The bracket could have been lost after Morley made his drawing. Instead, one would expect the "shell" sign in this area, since it is not infixed within the completion sign as it is at Temple IV. We suggest that this probably was the case, in spite of Morley's drawing of the bracket. Either way, the two drawings agree in establishing left and right margins far enough apart to require a prefix at A3, with the three dots of the month coefficient in A2 at the left margin. Morley draws the three dots for the day coefficient also at the left margin, while Coe considers this area of A1 as too damaged for reading by inspection. If we now restore these dots of A1 at the left margin on Coe's drawing, and then complete his remains of day and month signs so that their left sides come close to the dots as in Morley's drawing, both glyphs will be unbelievably asymmetrical. It is hard to escape the conclusion that Morley drew much more of those signs than he could see, and placed his vertical axis for symmetrical signs too far to the left.

Accepting Coe's Fig. 37c as showing all that is safely recognizable by inspection, it only tells us that we are at a half-katun-end in Mol. There was room for one or even two bars as well as for dots in either or both coefficients. However, if the extra spaces were filled with bars the date would have to be 12 Ahau 8 Mol at 9.4.10.0.0, in the Early Period. This may be rejected because the text is certainly a Late Period one on stylistic

grounds. Though the Maya sometimes recorded dates which were in the past by many katuns, such a date would not be the only one recorded. We have been at some pains to show that no other date has been lost from this lintel, and that it is unlikely that there was another carved lintel associated with it.

To reconcile Morley's fully justified reading with the new photographs and drawing, we postulate loss of affixes, though no local precedents have been found. At A2 the missing affix was probably Thompson's Te (1) affix which, as a numerical classifier, belongs between the coefficient and the month sign, where the space is available. This has been suggested to the writer by several competent Mayanists.

To fill the available space in A1, one immediately thinks of the centipede affix. This sign may project from the upper left corner of a Day Sign which partly hides it. But it may also appear complete, above or to the left of the Day Sign. A not necessarily compelling objection is that one would not expect its use with a Day Sign here at so late a date; still later such uses in northern Yucatan have been classed as archaisms in a peripheral area (Thompson, 1950, p. 57). The sign itself, in complete space-needing form, appears at D6 on the approximately contemporaneous Lintel 3 of Temple IV, at left margin, but as prefix in a non-calendrical glyph. In earlier times and in full form, it could appear between the coefficient and the Day Sign (Copan Stela 9 at 9.6.10.0.0) or at left margin before the coefficient of the Day Sign (Caracol Stela 6 at 9.8.10.0.0). The cited example at Copan is within Proskouriakoff's Hiatus Period between Early and Late Classic Periods; the Caracol example is very early in her Late Classic Period, and much closer to Tikal. For illustrations and readings of these two dates see Morley 1915, p. 173 and Pl. 8 B; Satterthwaite 1954, Table 2 and Fig. 22.

In the Caracol text, not yet fully published, the affix is used with two dates, but it is not used with others. Bearing this in mind, and the fact that only three "Late Tikal Monument Period" texts before 9.15.10.0.0 are known, it seems at least a reasonable guess that the centipede affix appeared here on the Structure 10 lintel. If this was the only "Tikal Monument Period" usage with a Day Sign, there is evidence of conscious local archaism at about this time, on Stela 5 (Morley, 1937–1938, Vol. I, p. 343; Proskouriakoff, 1950, p. 125). If the complete centipede affix postulate is rejected, good evidence seems to require some other of similar size and form.

If we are correct in claiming that affixes of one sort or another must have been lost from both blocks, then there were interesting differences in all three of the date-recording blocks, as compared with those recording the same date at Temple IV. This tends to support the view that this date was a dedicatory one at Structure 10 only. Being the only date recorded here, 9.15.10.0.0 3 Ahau 3 Mol as the DD satisfied Rules 1 and 2 (pp. 49–50) and this is confirmed by Proskouriakoff's mean style date for it, only a katun later (9.16.10.0.0 ± 3 katuns). In this case the 1 katun of difference is within a total spread of 6 katuns, not the usual 4 katuns.

LINTEL 2 OF TEMPLE III

Location:	Eight beams (*a–h*) spanned the only interior doorway; *b–h* still in place; see this report.
Dedicatory Date:	"Late Classic" (latest of "great" temples ??)
Style Date:	9.19.0.0.0 ± 2 1/2 katuns (Proskouriakoff estimate).
Condition:	Beam *a* missing; presumably with a left glyph panel; glyphs of right panel extensively damaged by termites.
Photographs:	Figs. 19, 20 of this report; Shook, 1957, Fig. 36; Coe, 1958, pp. 75, 77.
Drawings:	Fig. 18 of this report; Shook, 1957, Fig. 37; Coe, 1958, p. 77.
Other References:	This report; Morley, 1937–1938, Vol. I, p. 350.
Carved Areas:	Underside only, so far as known.
Material:	Wood (zapote).
Dimensions:	See Table 2.
Orientation:	Base of design to south; principal figure faces entrance, to observer's left.

GENERAL REMARKS

Coe and Shook's new data on wooden lintel beam proveniences have led them to infer that Lintel 1 of this temple was plain, not carved and ripped out as supposed by Morley and others. If they are correct as is here assumed, one seems justified in reasoning with a general rule that carved wooden lintels were placed over interior doorways only. We applied this rule at Structure 10 where, as here, it requires that there was no associated second lintel.

For the first time we have an adequate visual record of the carved lintel, supplied by Coe's photographs and drawing (Figs. 18–20). Though Beam *a* is missing, the others are still in place. Damage by rotting and termites is very extensive; nevertheless, much more of the design has been preserved than prior accounts would have led one to expect.

COMMENT ON THE INSCRIPTION

The illustrations confirm what little Morley could say about the inscription. The symmetrical layout of the design panel as a whole calls definitely for a lost panel of two columns of glyphs at the extreme left, balancing the preserved one of 38 blocks on the right. The columns of the right glyph panel accordingly have been lettered C–D. Presumably the total count was 38 + 38 = 76 blocks. This was the longest single text from the "Late Tikal Monument Period" of which we know. As we shall see, it does not break down into two parallel texts like those of the two carved lintels at Temple IV; it is slightly longer than the longer of those (64 blocks on Lintel 3). There are in addition two one-column panels of two blocks each, which we letter E and F for identification. Blocks F1–F2, destroyed, are spatially associated with the subordinate figure on the right, while E1–E2 are before the staff of the left attendant figure, and therefore before the staff of the principal figure also. E2 is definitely non-calendrical, and both small panels probably refer to the subordinate figures. Counting these, the total probable count of blocks rises to 80.

Morley reported that the right main panel here contained no dates. Coe's drawing confirms this as fully as can be expected, considering the fact that termites have been active

since Morley's time. At C6 there is a coefficient of 9 or 14. Conceivably this could have been the uinal term of an SS, with a CR date at C7–D7. Nowhere else could one restore a CR date with the required coefficients in sequent blocks. It follows that there was almost certainly a continuous text, beginning in the left and now lost main glyph panel. In the surviving panel there is an unexpected post-fixed and inverted numeral 9, like the coefficient of Glyph A of the Lunar Series, which presumably did not appear here.

On stylistic grounds we are definitely in the "Late Tikal Monument Period," when the dominant pattern was to open a text with the Dedicatory Date, declared to be a Period Ending. Probably this date was given at the beginning of the lost left panel. One has no means of judging whether that panel carried additional dates.

THE DEDICATORY DATE

Presumably the dedicatory date was recorded, but has been lost. We are limited to speculating on the relative chronological position of this lintel among the others. We have assumed that position in sequence cannot be safely inferred from overlapping style date spreads, but this does not mean that such may be entirely useless when other types of evidence can be brought to bear.

The central date at Temple III is later than any other by 1 1/2 katuns, but Proskouriakoff reports a somewhat unsatisfactory graph and a suspicion that the central date is somewhat late (see quotation on p. 71). Nevertheless she saw indications that the Temple III lintel "may be a little later than those from Temple IV." This is linked to the same opinion respecting the Temple I lintels. On the basis of epigraphy we have taken the position that the later of two spreads there may be short by 2.7.0.0 in the minus direction, or, with the hotun as the unit, an allowance of – 4 1/2 katuns instead of – 2 katuns may be required to cover the actual DD. To be safe, logically we should not exclude the possibility that the Temple III spread is also too short to cover the actual DD. If short by a comparable amount the DD of Temple III could have been as early as 9.14.10.0.0, though of course, there is no affirmative reason for accepting such a postulate.

The Proskouriakoff limits usually work so well that this would seem to be an acceptable extreme early limit. With it, and using epigraphic DD controls at Temples I and IV and Structure 10, all one can say about the sequent position of the Temple III lintel is that it is after those of Temple I. This is in line with the "small block" masonry at Temple I, not found at the other three buildings.

LINTEL 2 OF TEMPLE II

Location:	Five beams (a–e) originally spanned the middle (interior) doorway; none now in place, and only Beam c partially survives; see this report.
Dedicatory Date:	"Late Classic."
Style Date:	9.15.0.0.0 ± 3 katuns (Proskouriakoff revised estimate; given as Late Classic, Ornate Phase in 1950).
Condition:	All but parts of two beams missing; presumed inscription entirely lost.
Photographs:	Fig. 17 c of this report: Maler, 1911, Pl. 18.
Drawings:	Fig. 17 b of this report; Spinden, 1913, p. 257.
Other References:	This report; Proskouriakoff, 1950.
Carved Areas:	Underside only, so far as known.
Material:	Wood (zapote).
Dimensions:	See Table 2, this report.
Orientation:	Base of design probably to south with principal figure facing entrance, to observer's left.

GENERAL REMARKS

Coe and Shook provide evidence that here only one of the two available interior doorways was spanned by a carved lintel. We have in this, perhaps, a hint that at Temples I and IV, the lintels over the middle doorways were in favored positions. This might, of course, be nothing more than a matter of better lighting. If their reasoning that lintels over facade doorways were never carved is sound, Lintel 2 was the only carved one here, as at Temple 3 and Structure 10, where there was room for only one interior carved lintel.

THE DEDICATORY DATE

We have every reason to suppose that a chronological inscription appeared on this lintel, but it is completely lost. As at Temple III, we can only speculate on the position in the sequence of all carved lintels.

Proskouriakoff's revised style date limits are more precise than the original "Late Classic, Ornate Phase." In her scheme that phase runs from 9.13.0.0.0 to 9.17.0.0.0 but we were warned against taking these limits literally. We have no reason to suspect that the present ± 3 katuns allowance is either inadequate or excessive. It covers the range 9.12.0.0.0 – 9.18.0.0.0.

This spread permits one to substitute epigraphic for stylistic limits at Temples I and IV and Structure 10 and still insert Temple II anywhere in the sequence. But if we are correct in believing that Temple I was no later than 9.14.0.0.0, and probably was at 9.13.3.0.0, we may guess that Temple II belongs with it at the early end. The evidence for this is that even superficial observation shows only these two temples share the "small block" type of masonry facing for walls of the buildings containing the lintels (see p. 69). The locations of the two temples, which face each other across the Great Plaza, tend to confirm the view that they were close together in time. For full discussion of the stratigraphic relations of these two structures, see Tikal Report No. 12 in preparation.

Accepting this as probable, though not proved, the style date limits permit placing either temple first in the series. If Morley's not unreasonable guess that, among the great temples heights increased with time is given weight, the balance tips in favor of Temple II as the earliest of all. The carving of one instead of a pair of lintels would fit the picture. But before accepting such reasoning one would like proof by excavation that all great temple buildings proper were built at the same time as their supporting pyramids.

TABLE 1

SUMMARY OF PAST AND PRESENT ASSIGNMENTS OF LINTELS

STRUCTURE, LINTEL AND NUMBER OF BEAMS	*Maudslay* (1889–1902)	*Maler* (1911)	*Spinden* (1913)	*Morley* (1937–38)	*Present Assignments*
T. I, L. 1, two beams	Figs. 6, 7, 8, 9, 10	Plain	Plain	Plain	Plain
T. I, L. 2, four beams	Carved, two beams missing	Same as Maudslay	Same as Maudslay	Same as Maudslay	Fig. 12
T. I, L. 3, five beams	Figs. 1,2, 3, 4, 5	Fig. 13 e	Same as Maler	Same as Maler	Figs. 13 e, 2, 3, 4, 5 (see Fig. 13)
T. II, L. 1, five beams	Plain, evidently in place	All beams missing; unknown whether carved	Figs. 6, 7, 8, 9, 10	Figs. 8, 9, 10; Fig. 17 b, either here or in L. 2	Plain
T. II, L. 2, five beams	Carved, evidently in place	Fig. 17 b, c; three beams lost	Same as Maler	Fig. 17 c; possibly Fig. 17 b	Fig. 17 b, c
T. II, L. 3, six beams	Plain, all in place	Same as Maudslay	Same as Maler	Same as Maudslay	Same as Maudslay
T. III, L. 1, six beams	Beams fallen	Same as Maudslay; unknown whether carved	Same as Maler; may have been sculptured	Probably carved	Plain
T. III, L. 2, ten beams	Carved, in place, except for one; also confusedly suggests Lintel in Fig. 29 may belong here	Carved; one beam missing	Same as Maler	Same as Maler	Figs. 18, 19
T. IV, L. 1, six beams	No data	Plain, in place	Same as Maler	Same as Maler	Same as Maler
T. IV, L. 2, six beams	No data	All carved beams missing	Area could not have been spanned by beams in Figs. 6–10	Figs. 6, 7, 2, 3, 4 and possibly 1 and 5	Figs. 6, 7, 8, 9, 10, 1 (see Fig. 22)
T. IV, L. 3, seven beams	Fig. 29	Same as Maudslay	Same as Maudslay	Same as Maudslay	Fig. 29
Str. 10, Lintel, third story, five beams	No data	Five beams including those in Fig. 36 c, d	No data	Same as Maler: but confused regarding T. II, L. 2, Beam c	Fig. 36 c, d,

Note: All Figures refer to this report.

TABLE 2

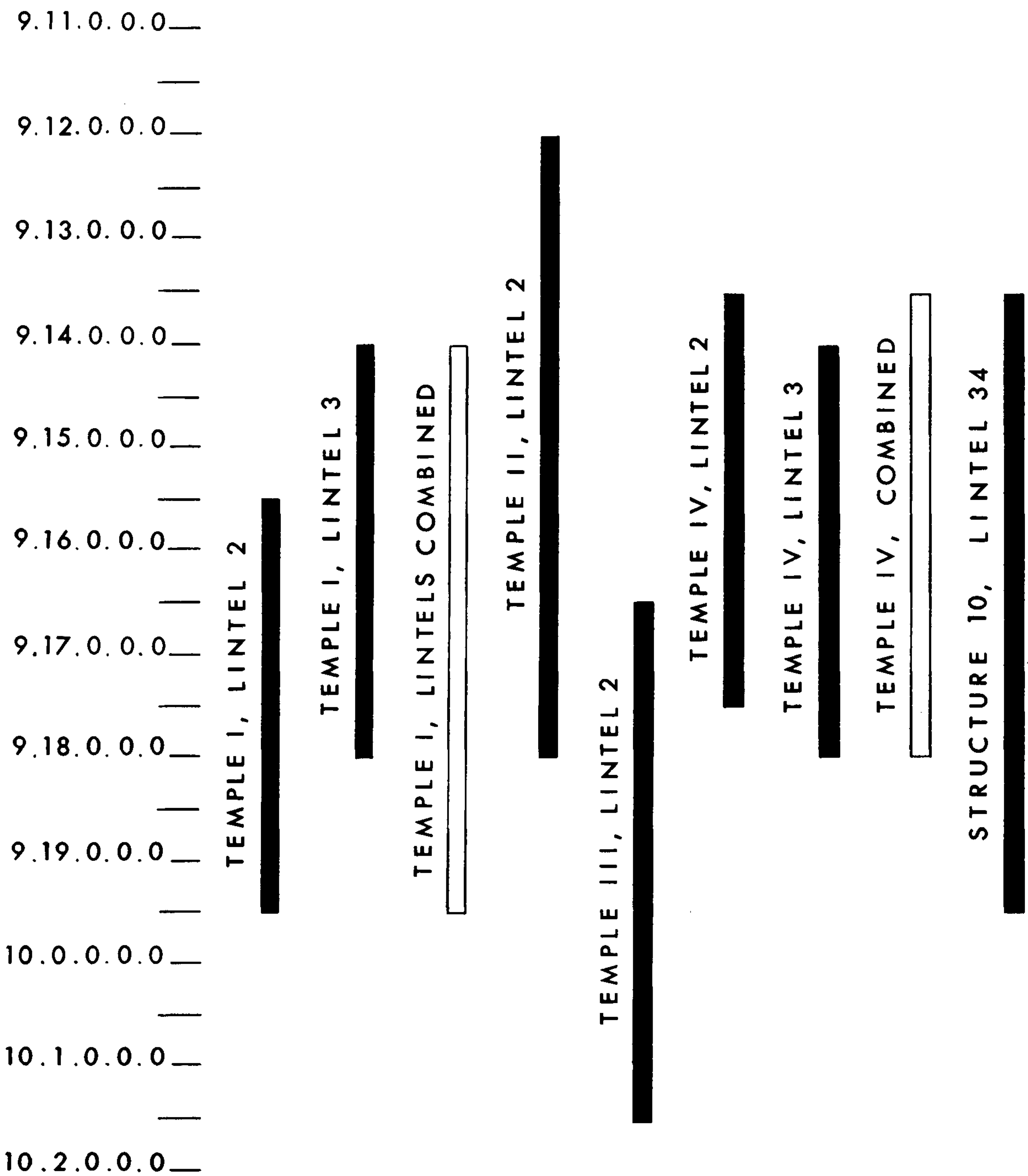
DIMENSIONS OF DOORWAYS, INSET OF LINTELS, LINTELS AND COMPONENT BEAMS

LOCATION	DOORWAY *width*	DOORWAY *thickness*	INSET DEPTH *outer*	INSET DEPTH *inner*	LINTEL *width*	LINTEL *length*	LINTEL *panel width*	LINTEL *panel height*	BEAMS *width and thickness*	
T. I, Doorway 1, L. 1	2.20	1.04	0.10	0.10	0.84	4.20	Plain	Plain	a. (0.39) by 0.185	b. 0.43 by 0.185
T. I, Doorway 2, L. 2	2.47	1.24	0.06	0.06	(1.12)	(4.01)	(1.05)	2.368	a. 0.33 b. 0.25	c. (0.28) by ca. 0.18 d. (0.26)
T. I, Doorway 3, L. 3	1.90	1.45	(0.55)	(0.55)	(1.34)	(3.96)	(1.26)	1.825	a. 0.18 by ? b. 0.285 by ? c. 0.33 by ?	d. (0.34) by ? e. 0.185 by 0.21
T. II, Doorway 1, L. 1	2.24	1.34	0.07	0.10	(1.17)	(4.54)	Plain	Plain	e. (0.23) by ?	
T. II, Doorway 2, L. 2	2.15	1.43	0.06	0.05	(1.32)	(4.42)	?	?	a. (0.27) by ? b. 0.21 by ? c. 0.235 by ?	d. (0.31) by ? e. (0.25) by ?
T. II, Doorway 3, L. 3	1.99	1.97	0.08	0.08	1.81	4.45	Plain	Plain	a. 0.33 b. 0.32 c. 0.29 by 0.20–22	d. 0.25 e. 0.30 f. 0.31
T. III, Doorway 1, L. 1	3.93	1.75	0.12	0.14	(1.49)	6.09	Plain	Plain	a. (0.23) by ? b. (0.22) by 0.15 c. (0.20) by 0.15 d. (0.18) by 0.18	e. (0.20) by 0.18 f. (0.16) by 0.17 g. (0.16) by 0.18 h. (0.14) by 0.22
T. III, Doorway 2, L. 2	2.18	2.30	0.07	0.07	(2.16)	4.37	(2.07)	2.03	a. (0.23) b. 0.22 c. 0.22 d. 0.28 e. 0.25	f. 0.21 by 0.17–0.19 g. 0.21 h. 0.17 i. 0.27 j. 0.20
T. IV, Doorway 1, L. 1	3.07	2.04	0.09	0.09	1.86	4.75	Plain	Plain	a. 0.31 b. 0.31 c. 0.32 by 0.23	d. 0.28 e. 0.315 f. 0.324
T. IV, Doorway 2, L. 2	2.18	2.32	0.06	0.06	(2.20)	(3.84)	(1.86)	2.16	a. (0.34) by 0.23 b. (0.29) by 0.17 c. (0.46) by 0.24	d. (0.39) by 0.24 e. 0.32 by 0.23 f. (0.39) by 0.22
T. IV, Doorway 3, L. 3	1.83	2.37	0.09–0.10	0.05–0.09	(2.20)	(3.76)	(2.05)	1.756	a. (0.335) by 0.21 b. 0.28 by 0.22 c. 0.29 by 0.23 d. (0.315) by 0.21	e. (0.27) by 0.21 f. (0.39) by 0.21 g. (0.27) by 0.20
Str. 10, Lintel, 3rd story	1.78	1.45–1.47	0.06	0.06	(1.34)	(3.08)	?	1.76	a. 0.22 by 0.18 b. 0.16 by 0.15 c. 0.39 by ?	d. 0.29 by ? e. 0.27 by ?

Note: Dimensions in parentheses are reconstructed. This distinction has not been made in the case of "beam thickness." All dimensions are in meters.

TABLE 3

PROSKOURIAKOFF'S STYLE-DATE LIMITS OF TIKAL CARVED LINTELS



REFERENCES

Berlin, H.

1951 El Templo de las Inscripciones—VI de Tikal. *Antropologia e Historia de Guatemala*, Vol 3, No. 1, pp. 33–54. Guatemala.

1958 El Glifo "Emblema" en las Inscripciones Mayas. *Journal de la Société des Américanistes* N.S., Vol. 47, pp. 111–120. Paris.

Beyer, H.

1943 Algunos Datos Sobre los Dinteles Mayas de Tikal en el Museo Etnográfico de Basilea. *Twenty-seventh International Congress of Americanists, Mexico*, Vol.1, pp. 338–343. Mexico.

Coe, W. R.

1958 Two Carved Lintels from Tikal. *Archaeology*, Vol. 11, No. 2, pp. 75–80. Cambridge.

Follett, P. H. F.

1932 War and Weapons of the Maya. *Middle American Research Series, Publication* 4. New Orleans.

Kulp, J. L., H. W. Feely and L. E. Tryon

1951 Lamount Radiocarbon Measurements, I. *Science*, Vol. 114, pp. 565–568. Lancaster.

Libby, W. F.

1955 Radiocarbon Dating. *University of Chicago*, 2nd edition. Chicago.

Long, R. C. E.

1923 Maya High Numbers. *Man*, Vol. 23, No. 39. London.

1940 The Dates on Altar 5 at Tikal. *American Antiquity*, Vol. 5, No. 4, pp. 283–286. Menasha.

Maler, T.

1911 Explorations in the Department of Peten, Guatemala—Tikal. *Memoirs, Peabody Museum, Harvard University*, Vol. 5, No. 1. Cambridge.

Maudslay, A. P.

1889–1902 Archaeology. *Biologia Centrali–Americana*. London.

Morley, S. G.

1915 An Introduction to the Study of the Maya Hieroglyphs. *Bureau American Ethnology, Bulletin* 57. Washington.

1920 The Inscriptions of Copan. *Carnegie Institution of Washington, Publication* 219. Washington.

1937–1938 The Inscriptions of Peten. *Carnegie Institution of Washington, Publication* 437. Washington.

Proskouriakoff, T.

1950 A Study of Maya Sculpture. *Carnegie Institution of Washington, Publication* 593 Washington.

Ritter, C.

1853 Ueber Neue Entdeckungen und Beobachtungen in Guatemala und Yucatan. *Gesellschaft für Erdkunde zu Berlin: Zeitschrift*, Vol. 1, pp. 161–193. Berlin.

Rosny, L., de

1882 *Les Documents Écrits de l'Antiquité Américaine*. Paris.

Satterthwaite, L.
1947 Concepts and Structures of Maya Calendrical Arithmetics. *Joint Publication No. 3, The Museum of the University of Pennsylvania and the Philadelphia Anthropological Society.* Philadelphia.
1948 Further Implications of Thompson's Readings of Maya Inscriptions at Copan. *Actes du 28th Congres International des Américanistes*, pp. 467–494. Paris.
1954 Sculptured Monuments from Caracol, British Honduras. *University Museum Bulletin*, Vol. 18, Nos. 1–2. Philadelphia.
1956 Radiocarbon Dates and the Maya Correlation Problem. *American Antiquity*, Vol. 21, No. 4, pp. 416–419. Salt Lake City.

Schaeffer, E.
1951 El Corregidor del Peten, Coronel Modesto Mendez y el Encargado de Negocios de Prusia von Hesse. *Antropologia e Historia de Guatemala*, Vol. 3, No. 1, pp. 55–60. Guatemala.

Shook, E. M.
1951 Investigaciones Arqueologicas en las Ruinas de Tikal, Departamento de El Peten, Guatemala. *Antropologia e Historia de Guatemala*, Vol. 3, No. 1, pp. 9–32. Guatemala.
1957 The Tikal Project. *University Museum Bulletin*, Vol. 21, No. 3, pp. 37–52. Philadelphia.

Spinden, H. J.
1913 A Study of Maya Art. *Memoirs, Peabody Museum, Harvard University*, Vol. 6. Cambridge.
1957 *Maya Art and Civilization*. Revised and Enlarged with Added Illustrations. Parts 1 and 2. The Falcon's Wings Press. Indian Hills, Colorado.

Thompson, J. E. S.
1932 The Solar Year of the Mayas at Quirigua, Guatemala. *Field Museum of Natural History Anthropological Series*, Vol. 17, No. 4. Chicago.
1944 The Dating of Seven Monuments at Piedras Negras. *Carnegie Institution of Washington, Division of Historical Research, Notes on Middle American Archaeology and Ethnology*, No. 39. Cambridge.
1950 Maya Hieroglyphic Writing: Introduction. *Carnegie Institution of Washington, Publication* 589. Washington.

Tozzer, A. M.
1911 Prehistoric Ruins of Tikal, Guatemala. *Memoirs, Peabody Museum, Harvard University*, Vol. 5, No. 2. Cambridge.

TIKAL REPORTS
Nos. 1, 4; also Nos. 12, 13, 14 in preparation.

Figs. 1–10

2

3

4

1

5

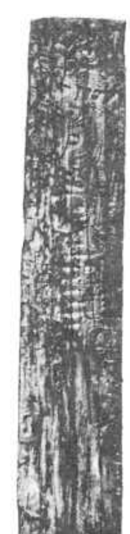
Figs. 1–5

Lintel beams as arranged in Maudslay's Pl. 71. Figs. 2–5 comprise Beams *a*, *b*, and *c* of Lintel 3 of Temple I (Fig. 13), and Fig. 1, when inverted, ,is Beam *f* of Lintel 2 of Temple IV (Fig. 22).

6

7

9



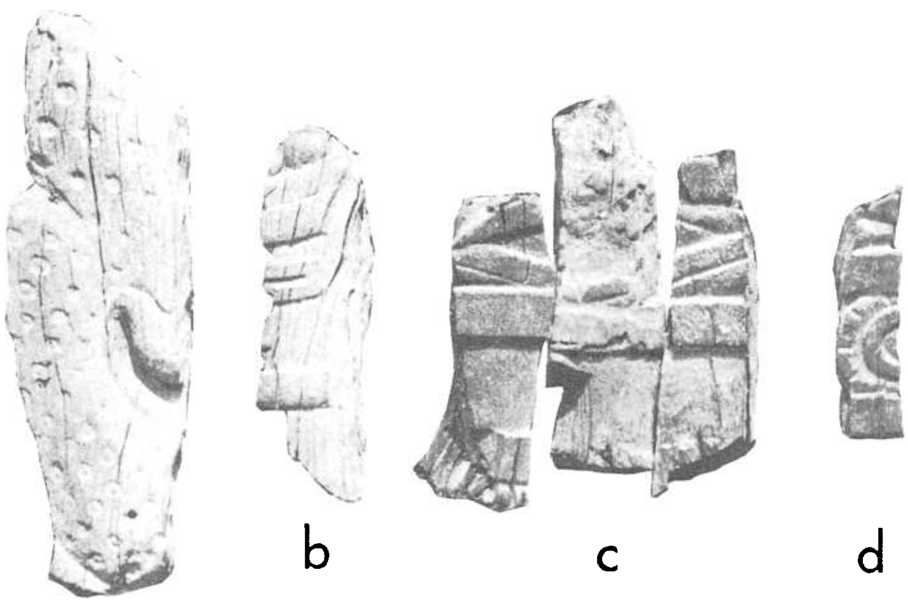
10

8

Figs. 6–10

Lintel beams as arranged in Maudslay's Pl. 72. These comprise Beams *a*, *e*, of Lintel 2 of Temple IV (Fig. 22).

Fig. 11

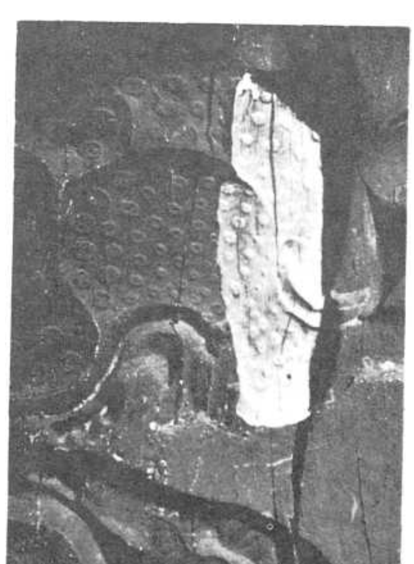


b c d

a

e

a–e Excavated lintel fragments. All from Temple I rooms except e which is from Temple IV rooms. a–d pertain to Temple I, Lintel 3 (Fig. 13); fragment in a positioned in f. Fragment in e belongs against lashed pole, bottom of Beam *g*, Lintel 3 of Temple IV (Fig. 35).



f

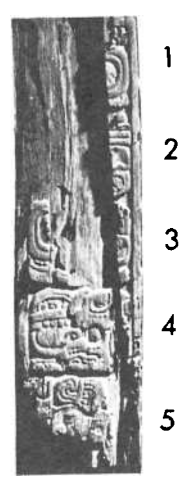
f. Fragment in a, fitted on epoxy resin cast of Beam c, of Lintel 3, Temple I.

g

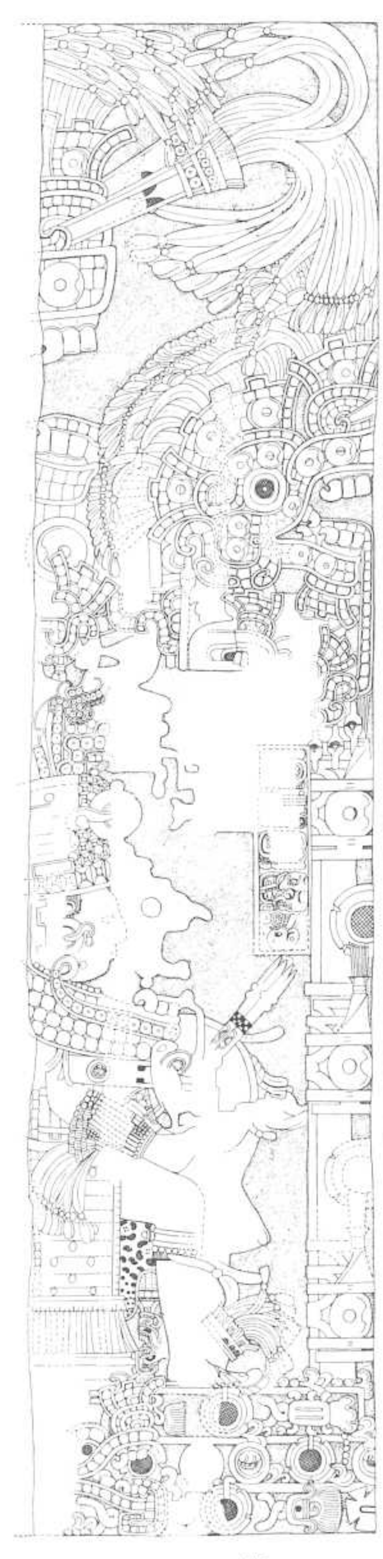
g. Fragment, from Temple I, fitted to cast of same lintel in f. Fragment fits manikin scepter.

a

b

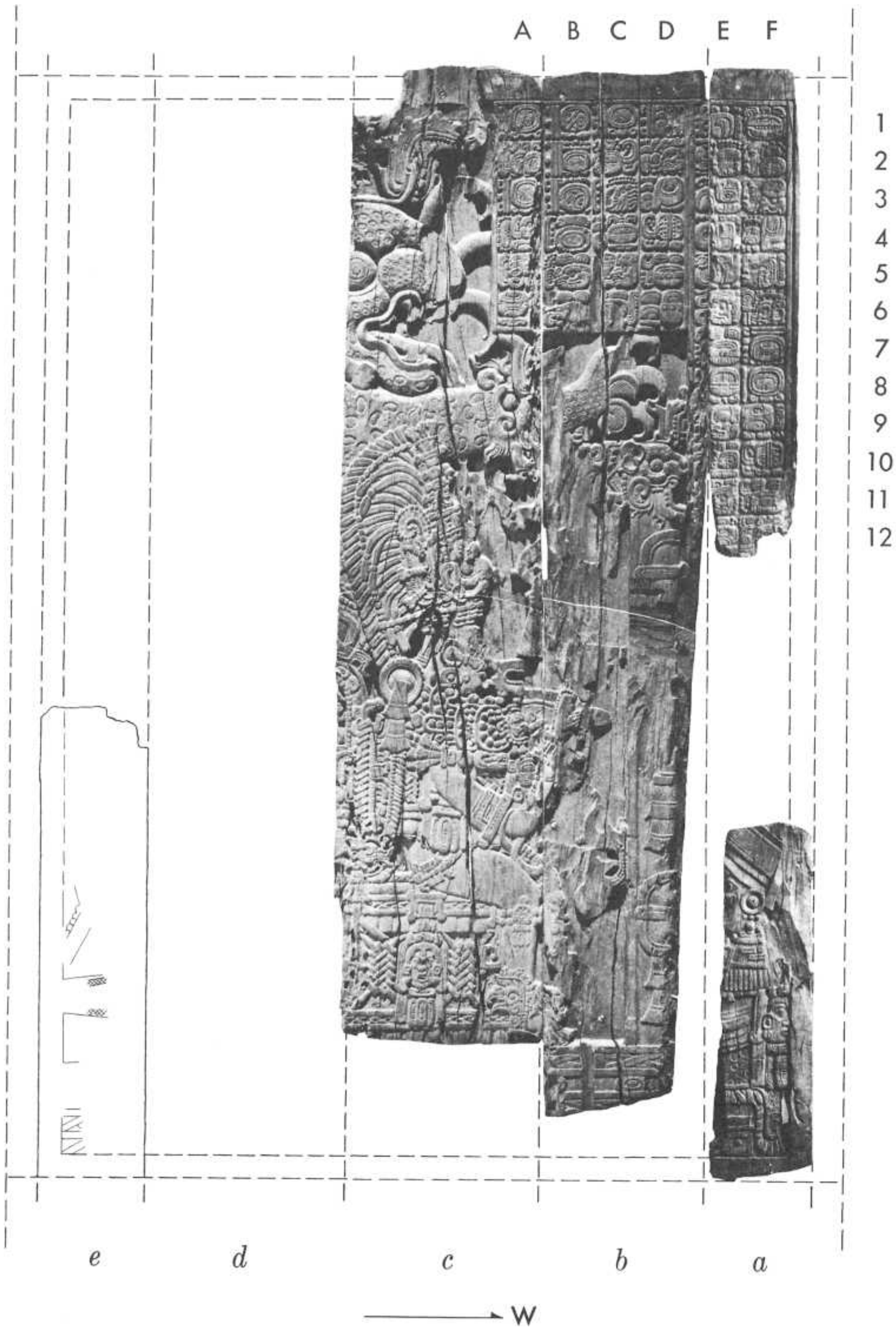


c



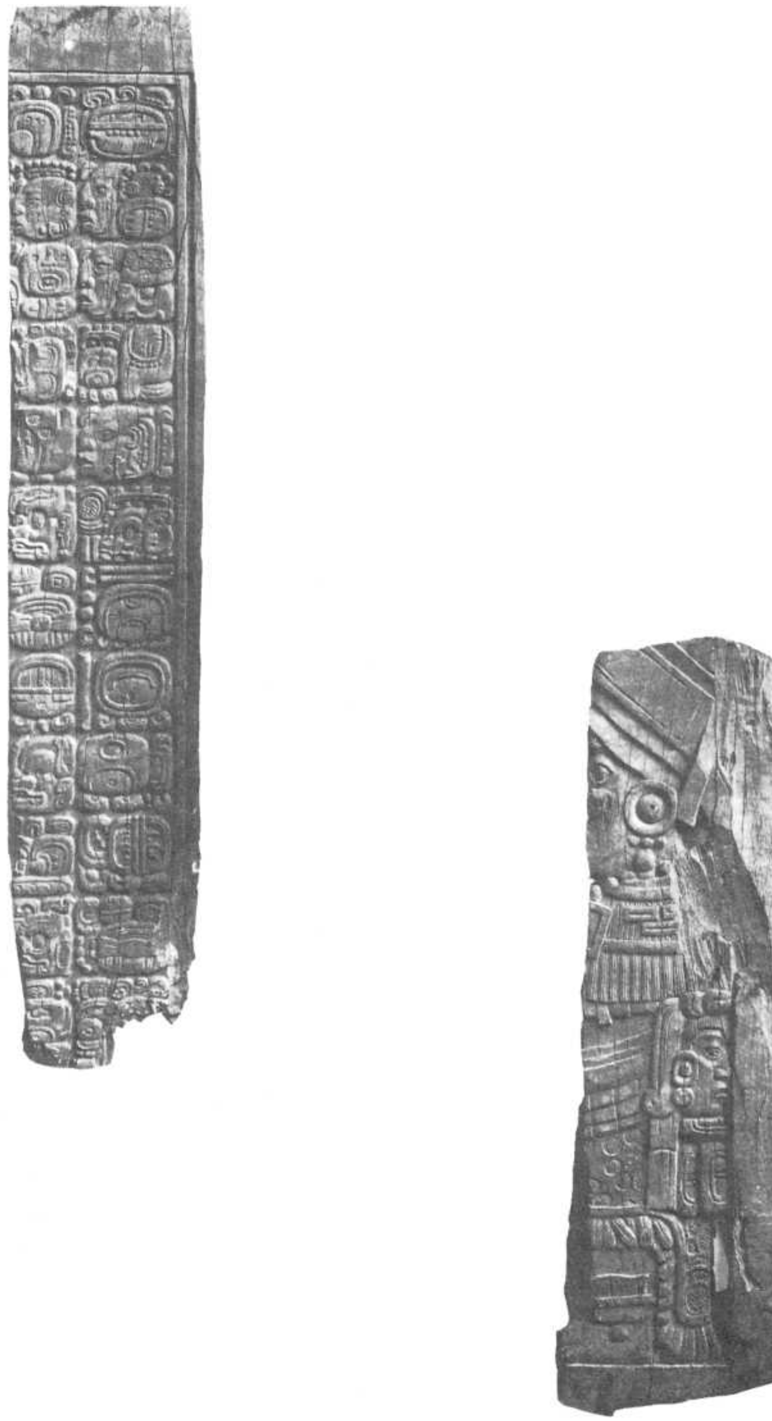
d

a. Temple I, Lintel 2, Beams *a* (right), and *b* (left). b, c. Detail of text, Column B, in c; with greater detail of Glyphs B1 and B2 in *b*. d. Drawing of the two beams with division between them ignored. Background stippled. Reconstructed portions in broken line. Sc. 1:12.



Temple I, Lintel 3, reconstruction. Beams lettered. Beam e fragment drawn from photograph. Scale 1:12. See Figs. 14–16 for details.

Fig. 14

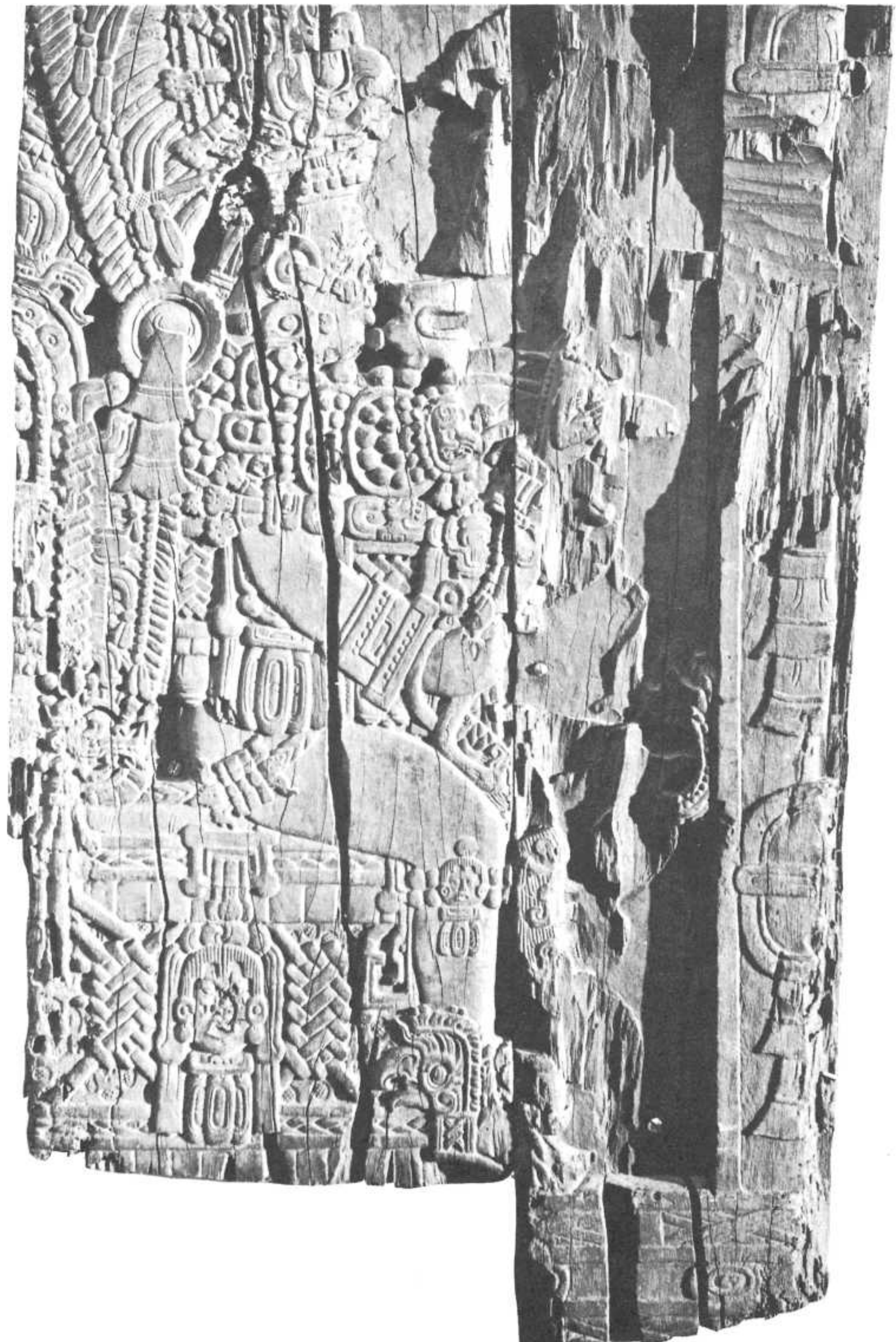


Temple I, Lintel 3, top and bottom fragments of Beam *a*. Not to same scale as Figs. 15, 16 which show Beams *b* and c. See Fig. 13 for position.

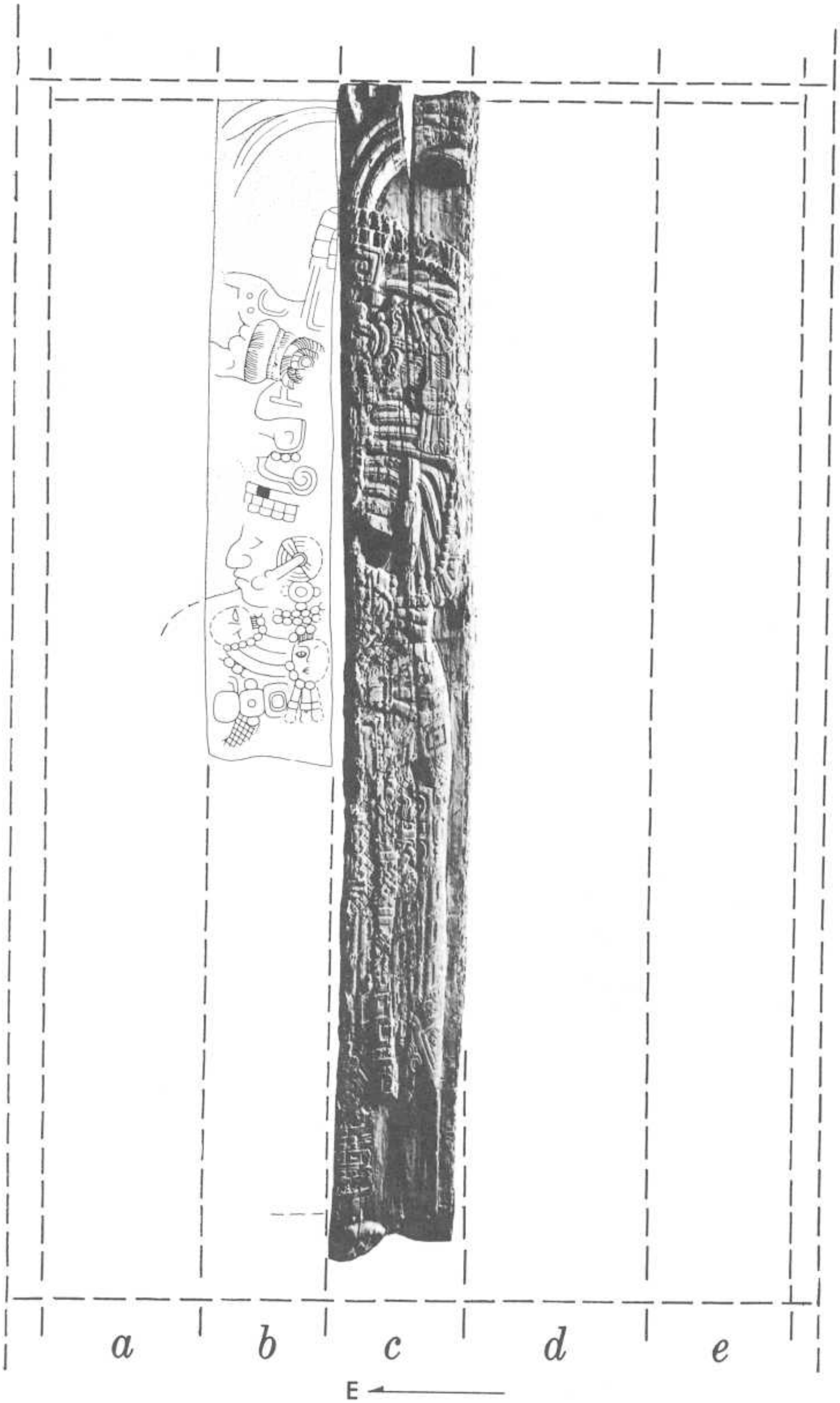
Fig. 15

Temple I, Lintel 3, top portions of Beams *b* and c. See Figs. 14 and 16 for other details of lintel. Beam positions shown in Fig. 13.

Fig. 16

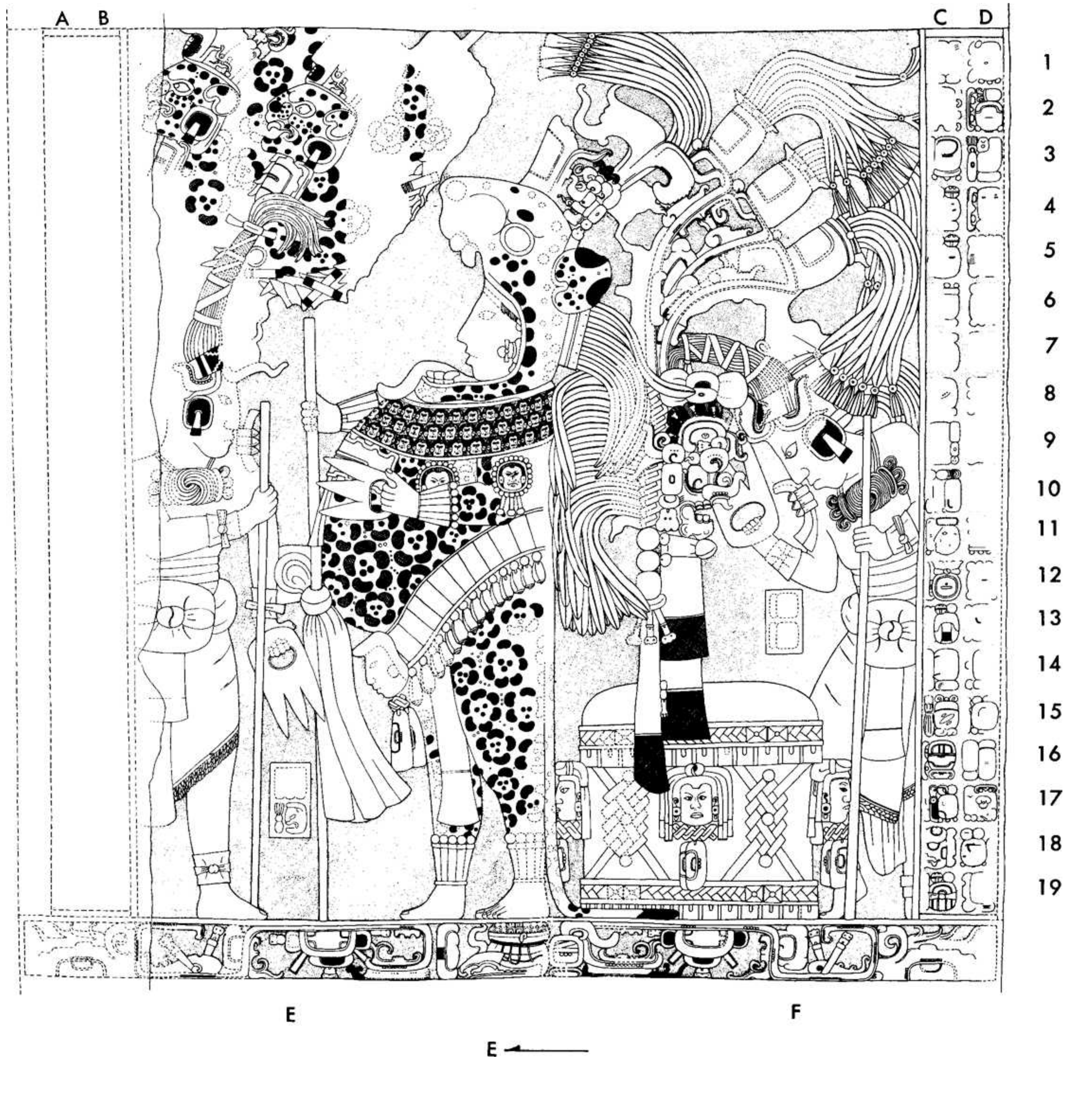


Temple I, Lintel 3, bottom portions of Beams *b* and c. See Figs. 14 and 15 for other details of lintel. Beam positions shown in Fig. 13.

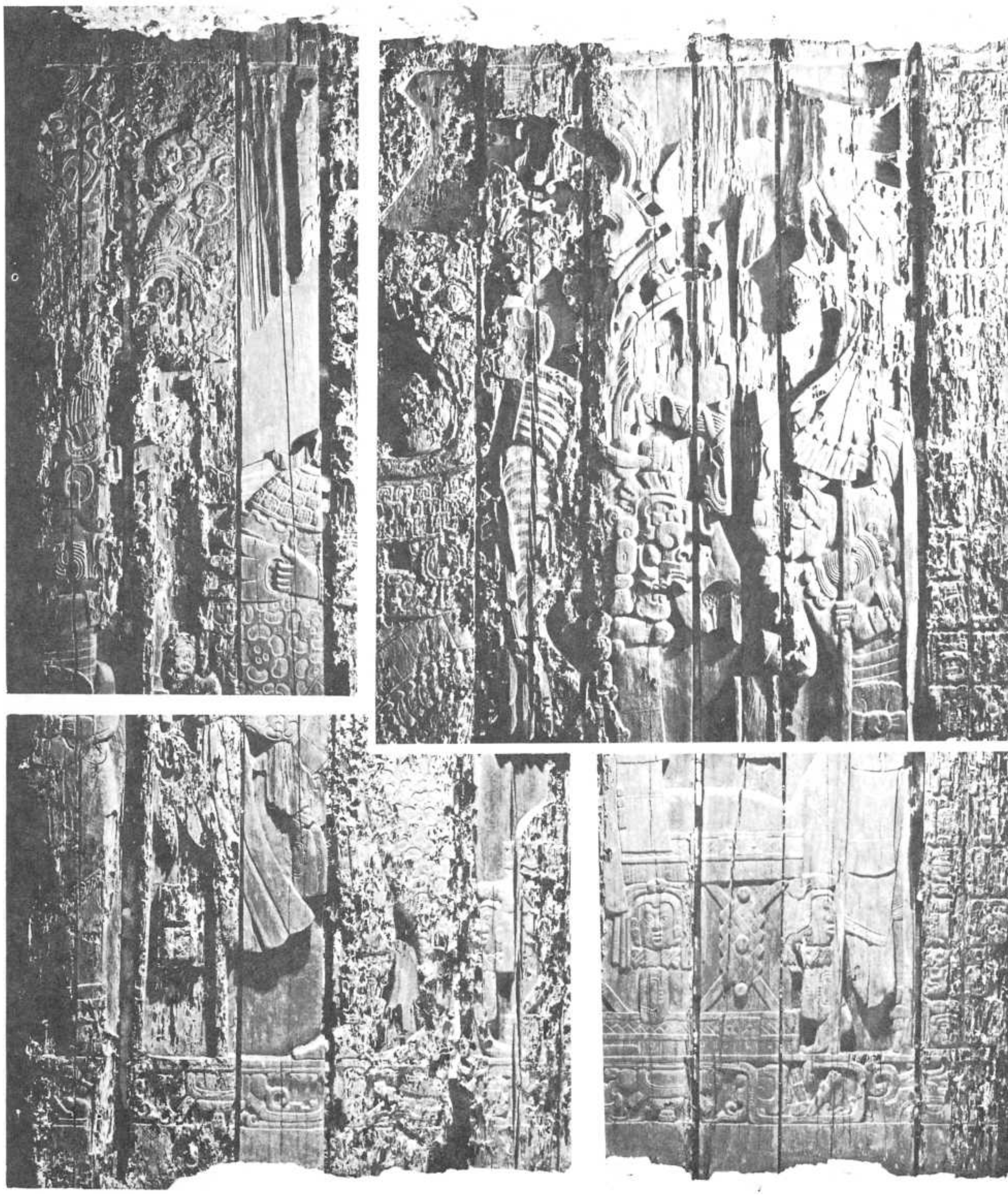


Temple II, Lintel 2, reconstruction. Beams lettered. Beam *b* drawn from photograph in Maler, 1911. Probably oriented to east. Scale 1:12.

Fig. 18



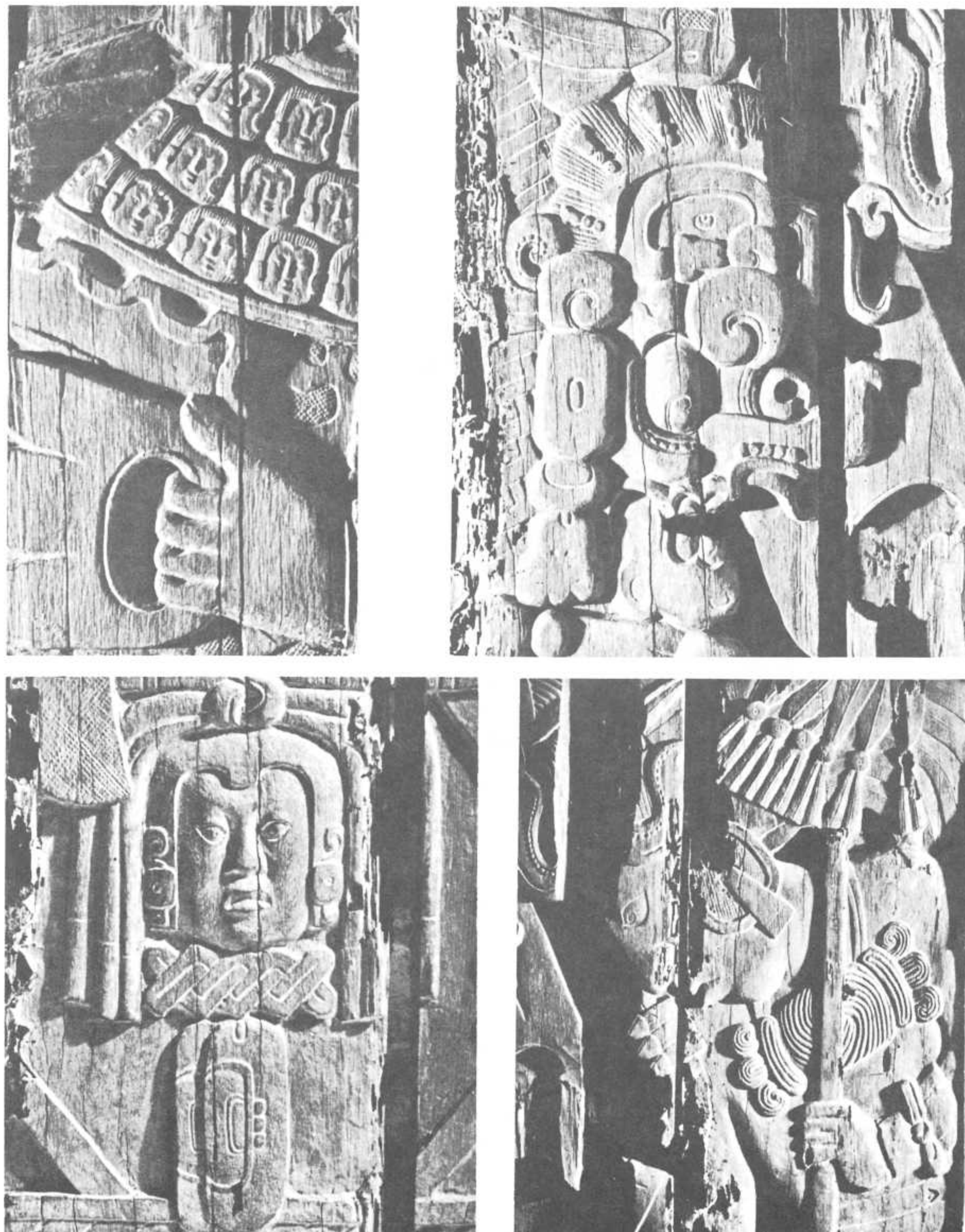
Temple III, Lintel 2, plan of design panel. Existing divisions between beams ignored (See Fig. 19). Background stippled. Reconstructed portions in broken line. Columns of two-block interior panels "E" (left) and "F" (right). Scale 1:12.



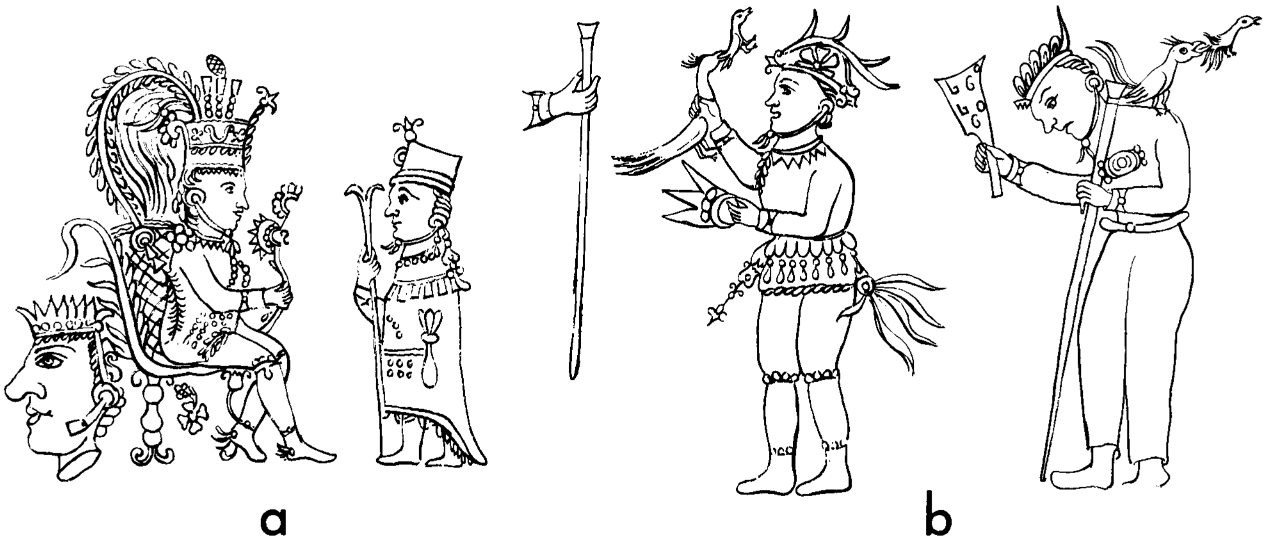
a *b* *c* *d* *e* *f* *g* *h* *i* *j*

Temple III, Lintel 2, photo-mosaic. Scale ca. 1:12.
See detail photographs and line drawing in Fig. 18.

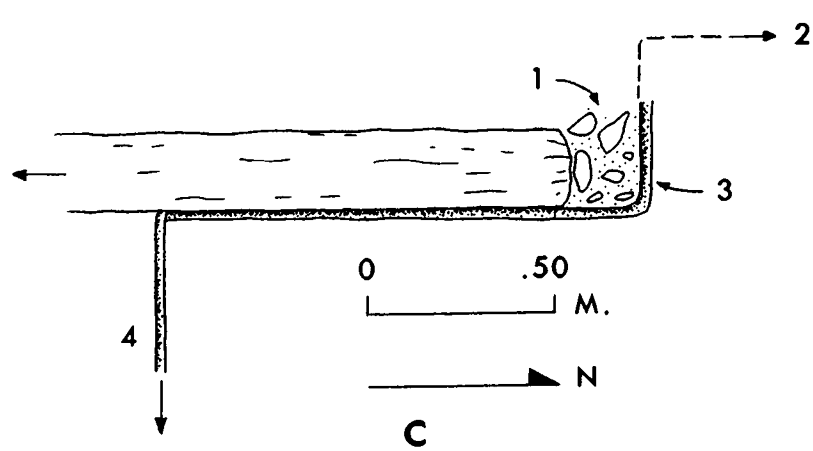
Fig. 20



Details of Lintel 3, Temple III. For position, see preceding figures.

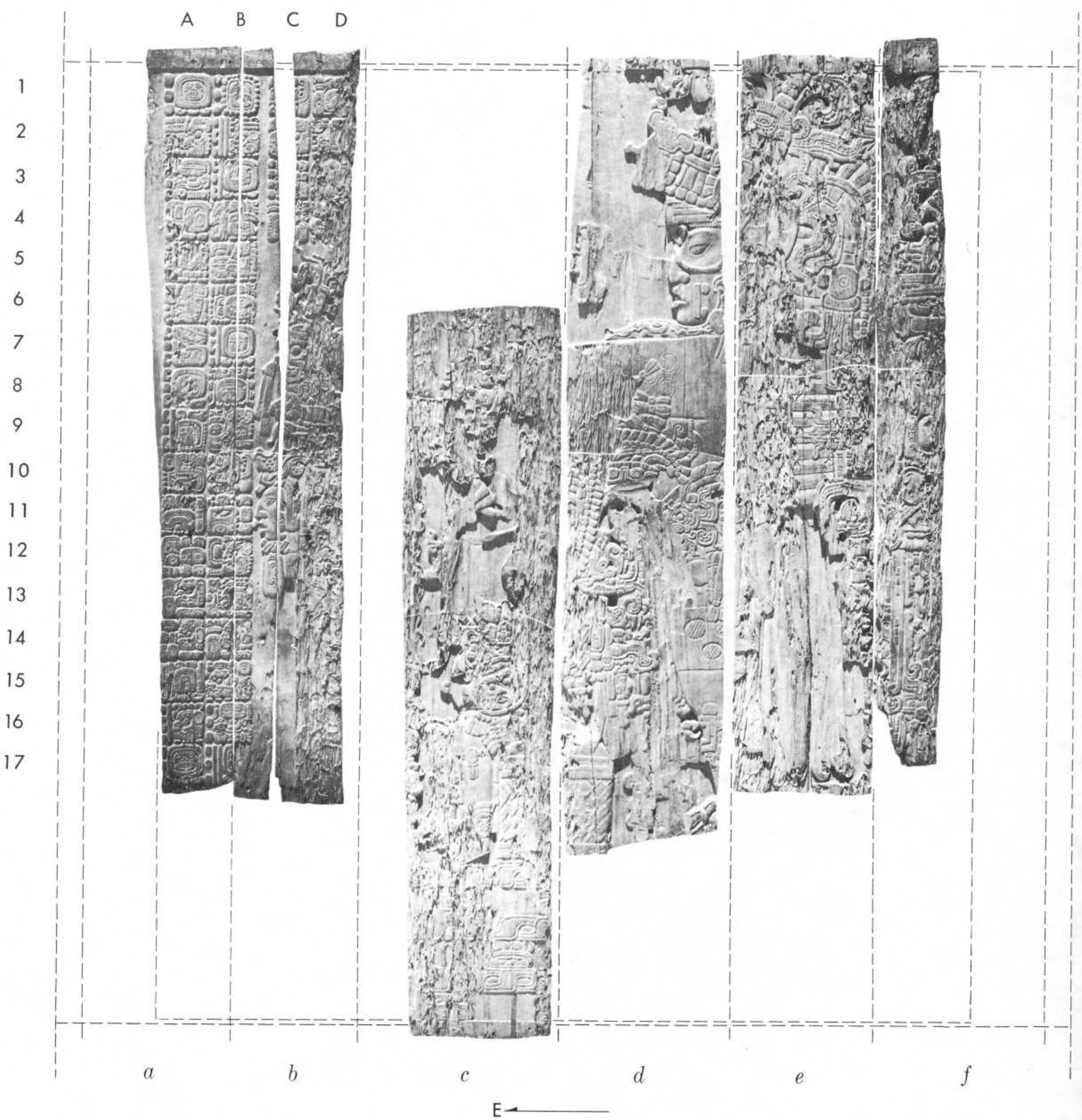


a, b. From Ritter, 1853. Detail from Lara drawings. Portion of Temple I, Lintel 3 shown in a. Dwarf figure occurs on Beam *a*, seated figure on Beams *b* and *c*, while the head behind the throne presumably occurred on the now missing Beam *d*. Cf. Fig. 13. Temple III, Lintel 2 is substantially depicted in b. Cf. Fig. 18.



Temple III, Lintel 2, Beam *a* (restored from impression), elevation showing specialized inset for lintel in wall masonry. (1) restored level of top of wall on basis of Lintel 1 of temple which shows same inset feature; (2) mortar between beam end and inset wall; (3) plaster; (4) north jamb of doorway to Room 2.

Fig. 22

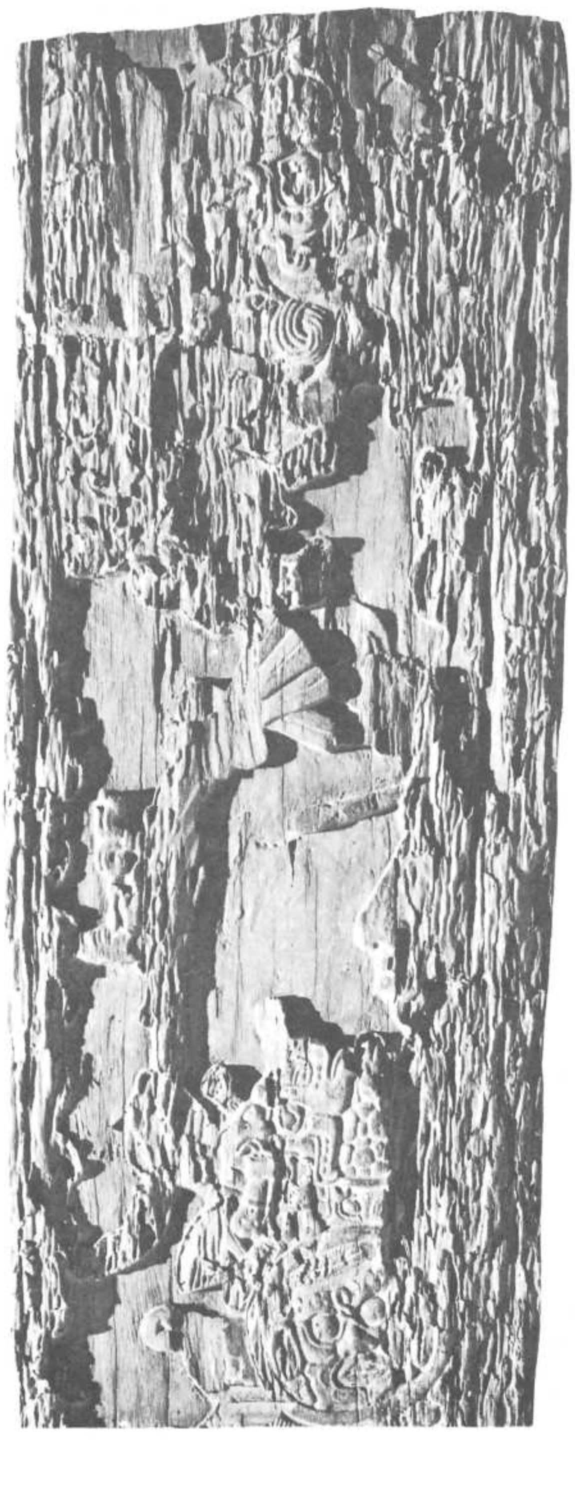


Temple IV, Lintel 2, reconstruction. Beams lettered. Scale 1:12. See Figs. 23–28 for details.

Temple IV, Lintel 2, top portions of Beams *a* and *b*. See Figs. 24–28 for other identically scaled details of lintel. Beam positions shown in Fig. 22.

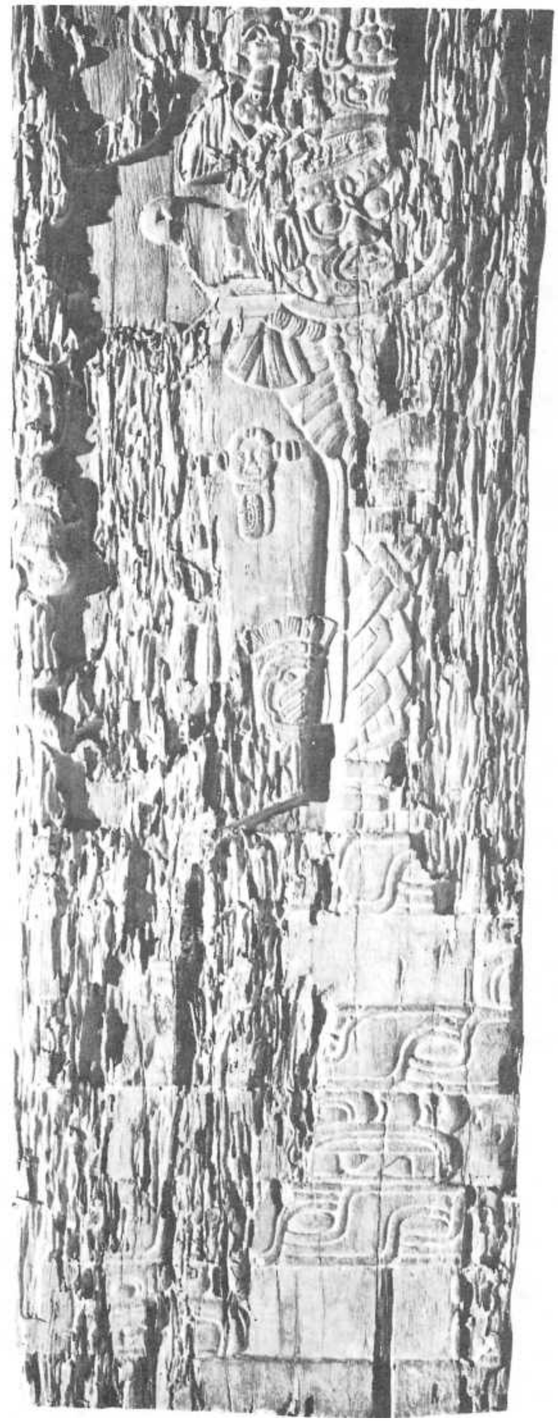
Fig. 24

Temple IV, Lintel 2, bottom portions of Beams *a* and *b*. See Figs. 23, 25–28 for other identically scaled details of lintel. Beam positions shown in Fig. 22.



Temple IV, Lintel 2, top portion of Beam c in incomplete state. See Figs. 23, 24, 26–28 for other identically scaled details of lintel. Beam position shown in Fig. 22.

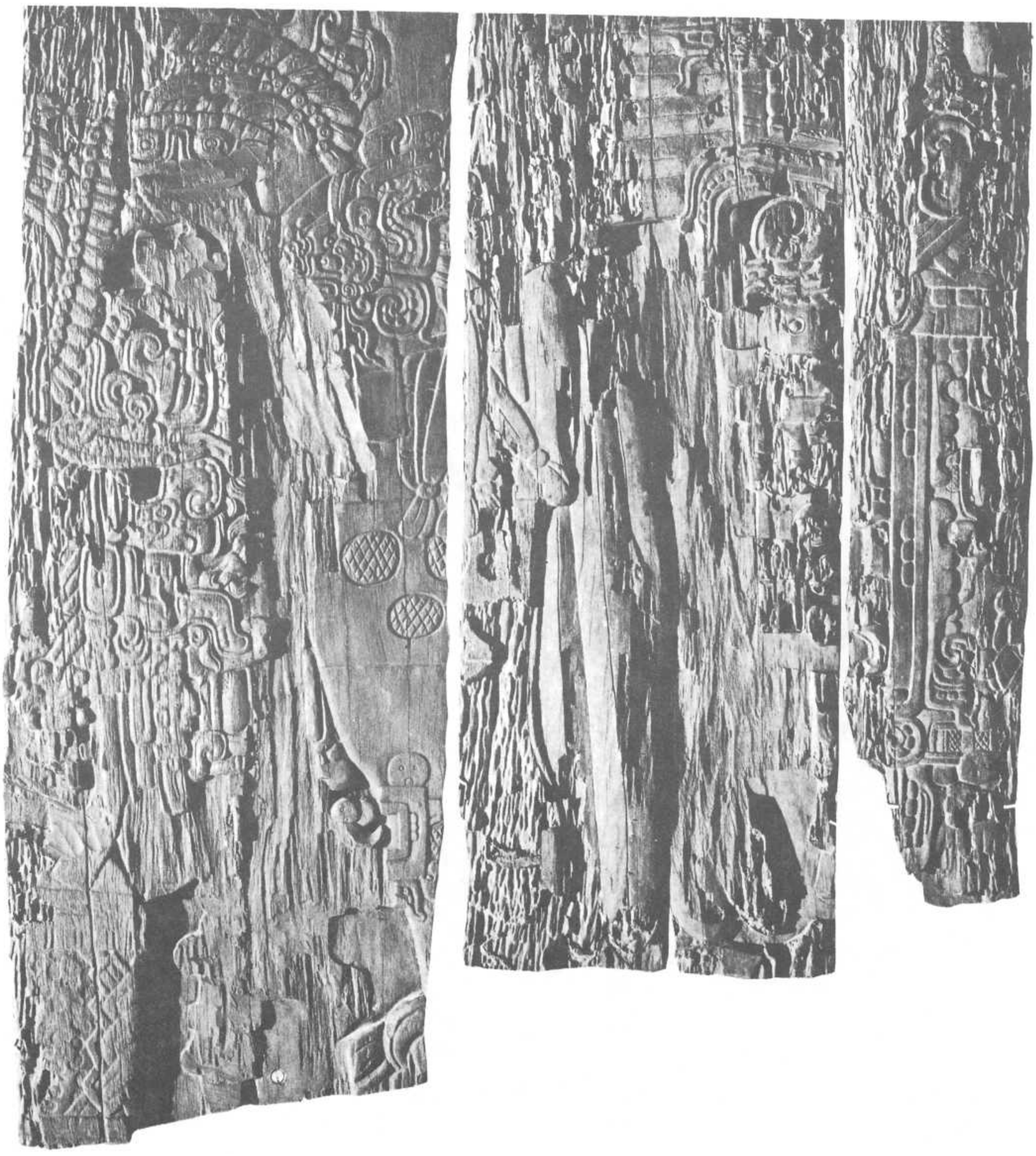
Fig. 26



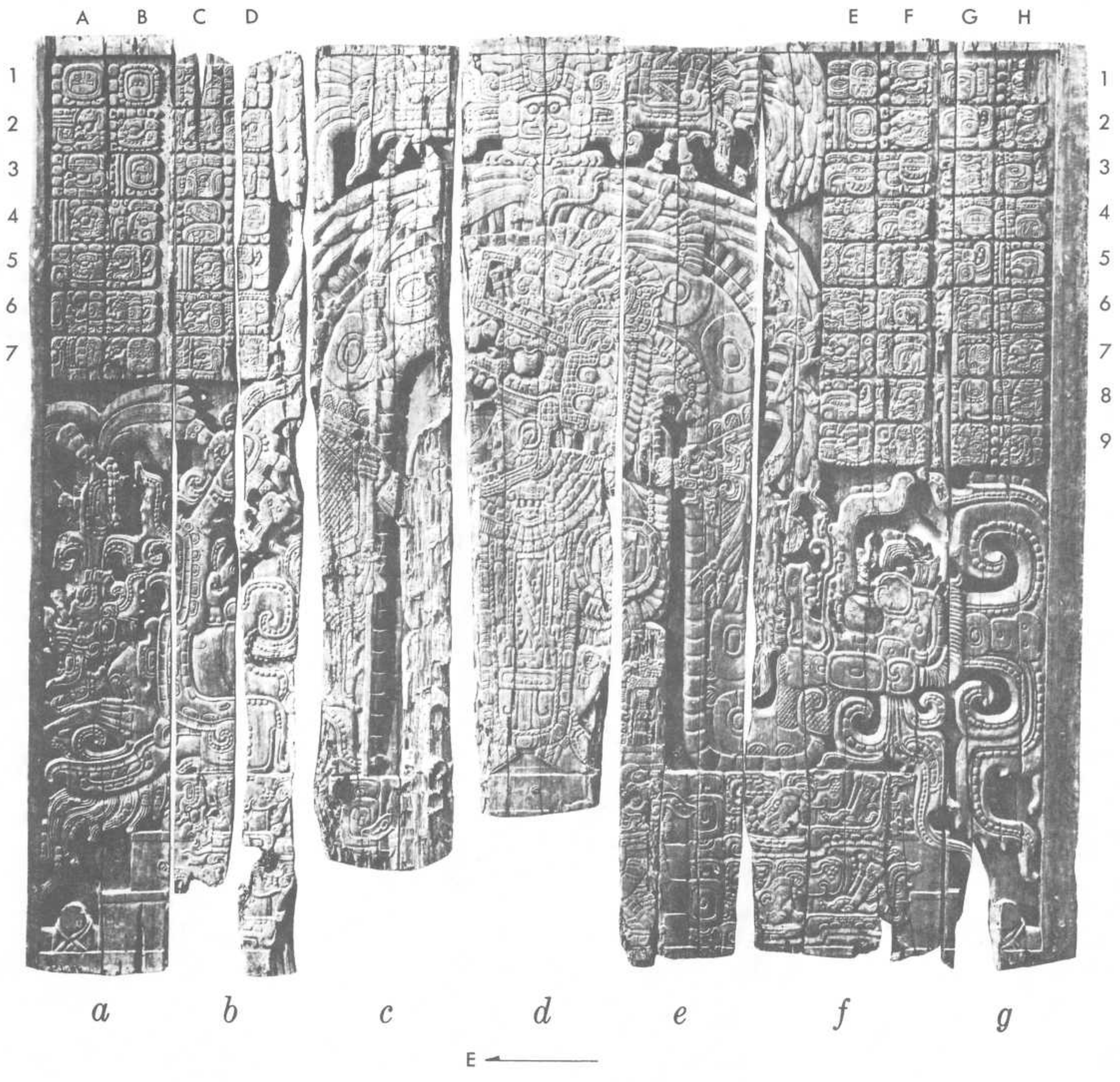
Temple IV, Lintel 2, bottom portion of Beam c. See Figs. 23–25, 27, 28 for other identically scaled details of lintel. Beam position shown in Fig. 22.

Temple IV, Lintel 2, top portions of Beams *d*, *e*, *f*. See Figs. 23–26, 28 for other identically scaled details of lintel. Beam position shown in Fig. 22.

Fig. 28

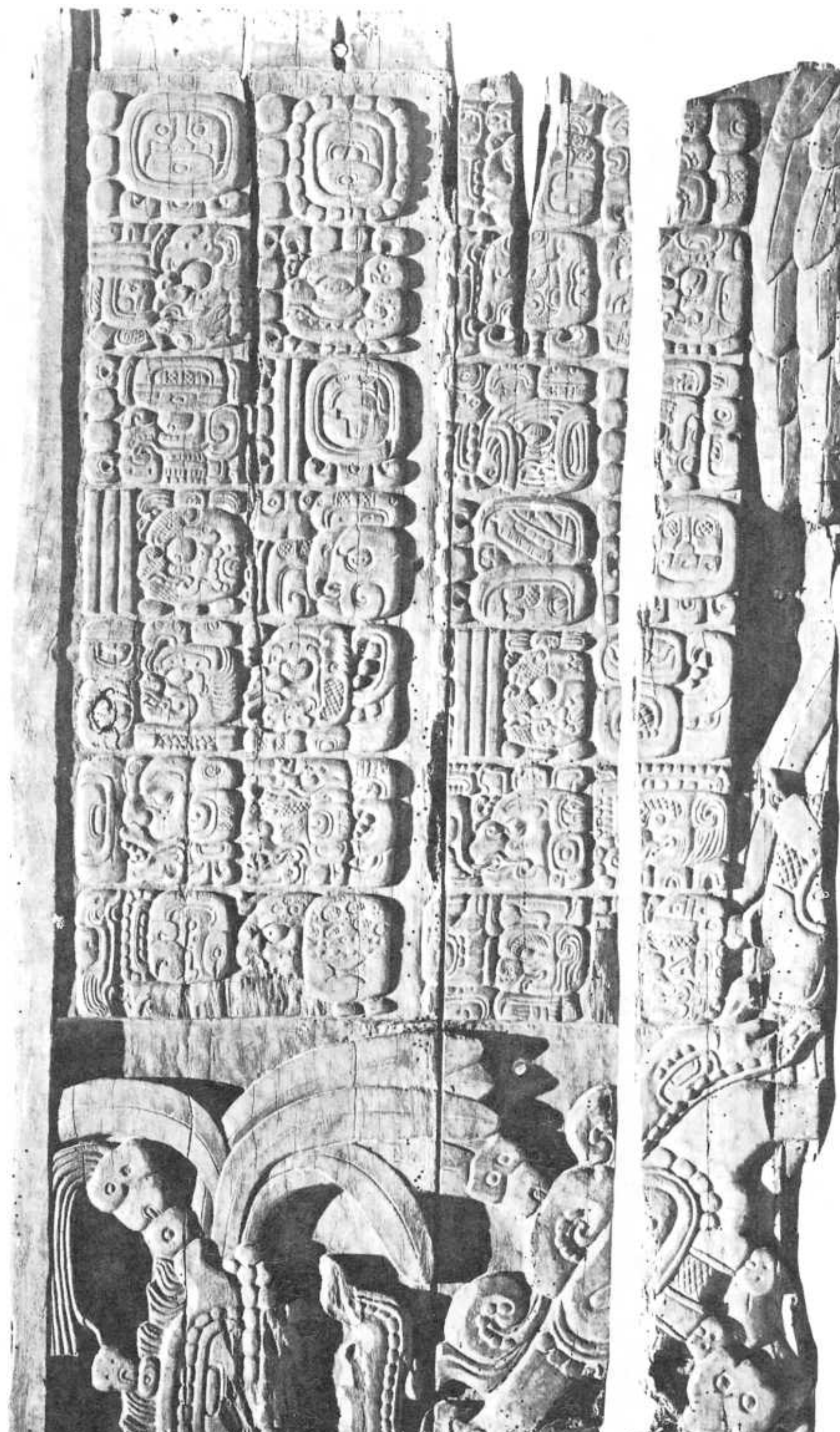


Temple IV, Lintel 2, bottom portions of Beams *d*, e, *f*. See Figs. 23–27 for other identically scaled details of lintel. Beam positions shown in Fig. 22.



Temple IV, Lintel 3. Scale 1:12. Photograph courtesy of Museum für Völkerkunde, Basel, and the photographers, Moeschlin and Bauer, Basel. See Figs. 30–35 for details.

Fig. 30



Temple IV, Lintel 3, top portions of Beams *a* and *b*. See Figs. 31–35 for other identically scaled details of lintel. Beam positions shown in Fig. 29.

Temple IV, Lintel 3, bottom portions of Beams *a* and *b*. See Figs. 30, 32–35 for other identically scaled details of lintel. Beam positions shown in Fig. 29.

Fig. 32

Temple IV, Lintel 3, top portions of Beams c, *d*, e. See Figs. 30, 31, 33–35 for other identically scaled details of lintel. Beam positions shown in Fig. 29.

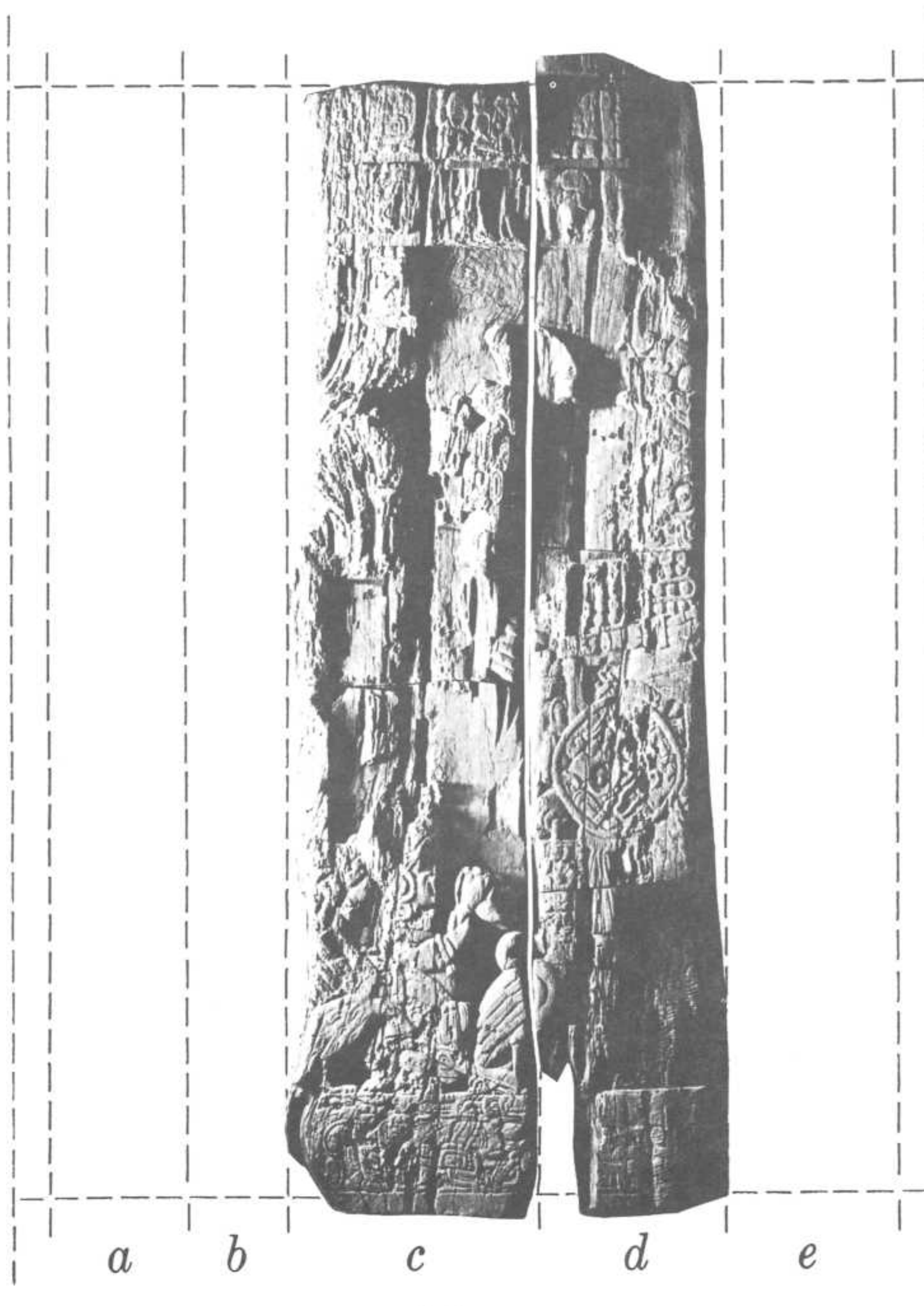
Temple IV, Lintel 3, bottom portions of Beams c, *d*, e. See Figs. 30–32, 34, 35 for other identically scaled details of lintel. Beam positions shown in Fig. 29.

Fig. 34

Temple IV, Lintel 3, top portions of Beams *f* and *g*. See Figs. 30–33, 35 for other identically scaled details of lintel. Beam positions shown in Fig. 29.

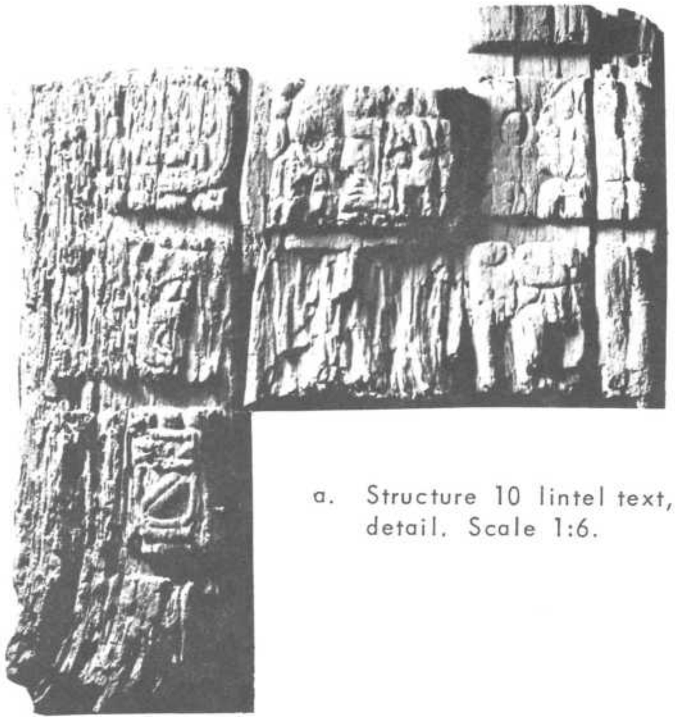
Temple IV, Lintel 3, bottom portions of Beams *f* and *g*. See Figs. 30–34 for other identically scaled details of lintel. Beams positions shown in Fig. 29.

Fig. 36

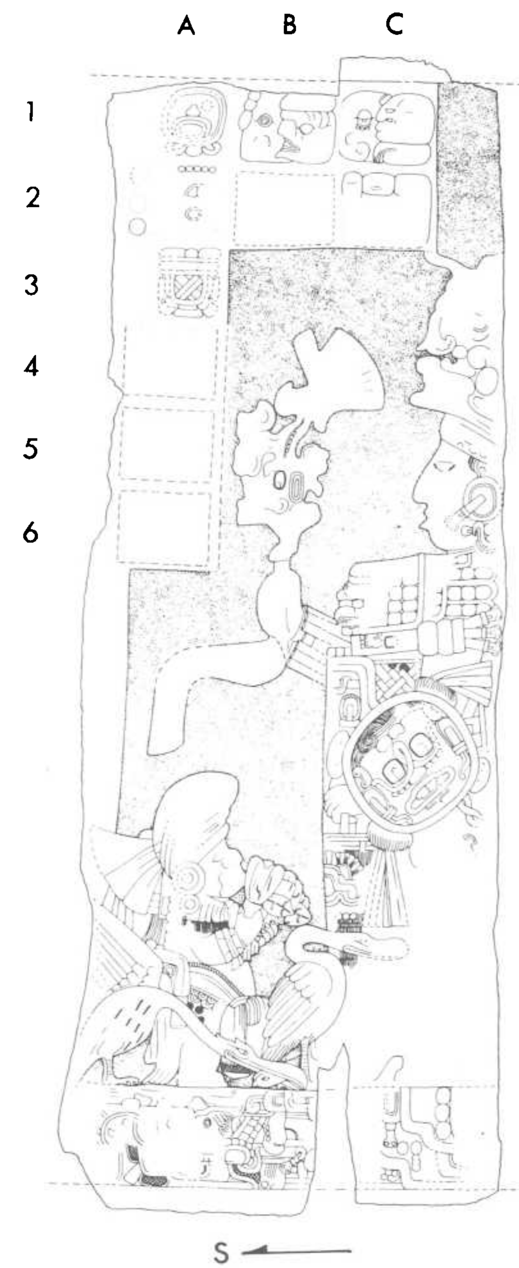


Structure 10 (Str. 5D-52), carved lintel, reconstruction. Beams lettered. Details in Fig. 37. Scale 1:12.

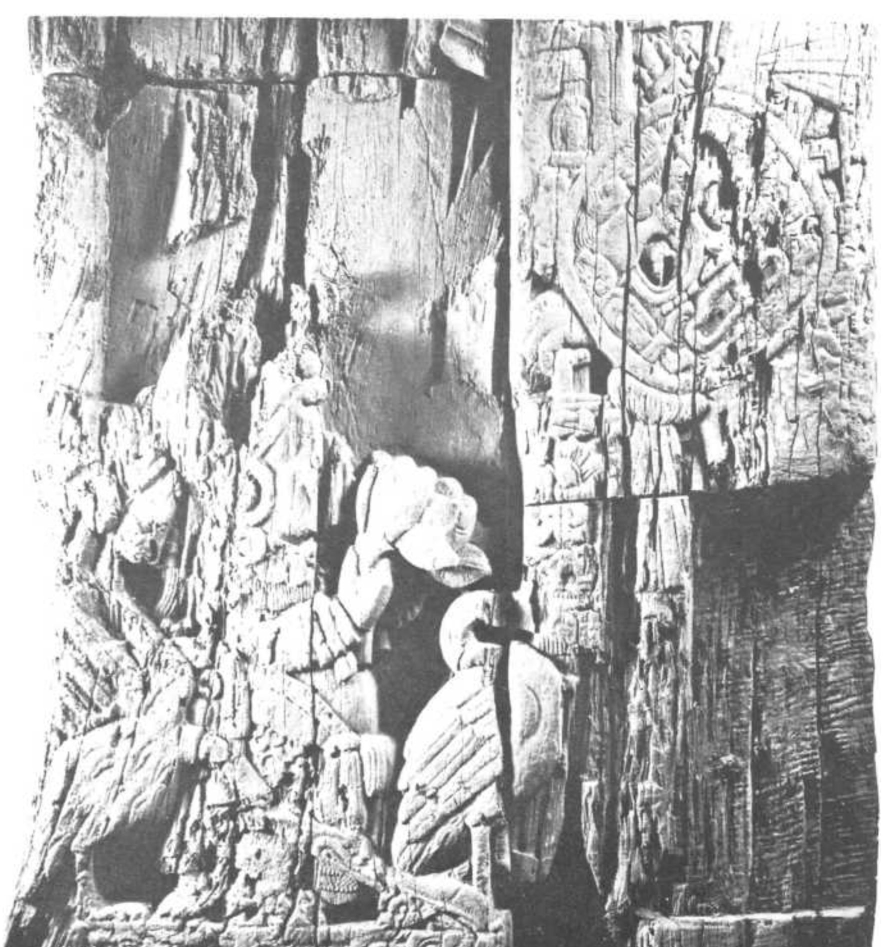
Fig. 37



a. Structure 10 lintel text, detail. Scale 1:6.



b. (Above). Structure 10 lintel, drawing of Beams c and *d* in Fig. 31. Beam division ignored. Background stippled. Reconstruction in broken line. Scale 1:12.



c. (Left). Structure 10 lintel, detail of carving showing dwarf and two cranes, and shield.

TIKAL REPORT NO. 7

TEMPLE I (STR. 5D-1): POST-CONSTRUCTIONAL ACTIVITIES

Richard E. W. Adams and Aubrey S. Trik

CONTENTS

	Page
INTRODUCTION	117
SURFACE EXCAVATION	118
EXCAVATION OF BURIAL PIT	120
Str. 5D-1: Unit 1	120
Str. 5D-1: Unit 2	120
Str. 5D-1: Unit 3	121
BURIALS AND CACHE	121
Burial 5	121
Burial 6	123
Cache 37	123
ARTIFACTS	124
Stone	124
Flint	124
Obsidian	124
Jadeite	124
Slate	125
Stingray Spines	125
Copal	125
Ceramics	125
1. Flaring-sided, Tripod Plates	125
2. Censers	127
3. Utility Vessels	127
4. Miscellanea	128
Discussion of Ceramics	128
SUMMARY AND CONCLUSIONS	129
Structure 5D-1: Time-span 3	129
Structure 5D-1: Time-span 2	130
TABLE 1—SUMMARY OF STRUCTURE 5D-1: TIME-SPANS DEFINED TO DATE	132
Structure 5D-1: Time-span 1	133

Page
APPENDIX–TEMPLE II (STR. 5D-2)–EVIDENCE OF LATE ACTIVITY 134
REFERENCES 135
FIGURES 137

Fig. 38 Temple I, Plan and Section of Temple Rooms.

Fig. 39 Views of Burial Pit.

Fig. 40 Burial Pit, Floor Features, Cache 37 and Contents.

Fig. 41 Pottery

Fig. 42 Pottery

Fig. 43 Pottery and Flint Projectile

INTRODUCTION

One of the many aims of further study and excavation at Tikal is to shed light on the occupation and intermittent activities there from the close of the Classic Period to the reappearance of the site in modern historical reference. It is quite possible that the information so acquired will not only help to fill a void in the history of Tikal, but, when related to other archaeological evidence, will also contribute materially to the understanding of the forces and events which influenced and accompanied the breakdown of the once vigorous ceremonial center.

The latest known dated monument at Tikal is Stela 11, at 10.2.0.0.0. No monuments have been encountered at Tikal that can be said to have been both fashioned and erected following this date. It has been argued that monument activity of a degenerate or abnormal sort did however continue beyond this date (Tikal Report No. 2). Additionally, various Tohil Plumbate sherds (tentative identification, Anna O. Shepard) were discovered during excavations of "house-mounds" in 1959.

The present report is devoted essentially to description and analysis of remains in Temple I (technically designated Str. 5D-1), which are evidently referable to a Post-Classic Period. Supplementary data gathered from Temple II are given in the Appendix. In Temple I, this activity disturbed an intrusive Classic Period burial; this interment, Burial 6, is included in this report since it is very clear that it was made following completion of the temple.

The post-construction sequence of local activities is expressed in "time-spans" (Str. 5D-1: Time-spans 1, 2, and 3, 1 being the latest). As this is written, Temple I is still being excavated. A report is anticipated in which all earlier activity relating to the temple, its construction and occupation, will be presented.

Information on Caches 47, 48, and 49A and B, which pertain to this temple, and a brief statement of Cache 37 are contained in a study of Tikal caches (Tikal Report No. 13). Full data on the lintels of the temple appear in Tikal Report No. 6. The results of that part of the Carbon-14 program respecting Temple I are given by Satterthwaite and Ralph (1960).

We wish to acknowledge the extensive aid given in preparation of this report, particularly the ceramic portion, by James C. Gifford and Robert E. Smith.

SURFACE EXCAVATION

Excavation of the rooms of Temple I was conducted over a period of three years, 1957, 1958, and 1959. The initial excavation was primarily in a search for fragments of carved lintels left by Bernoulli's men in 1877 when they removed beams from over the doorways (Tikal Report No. 6). While clearing debris, W. R. Coe encountered a large disturbed area in the floor of Doorway 3 (see Fig. 38). The thick lime-concrete floor had been cut, and what appeared to be a roughly rectangular pit was filled to floor level with stones and mortar from a fallen section of the vault above, with four rough poles projecting from the debris. Sherds and two whole and one partially complete stingray spines covered with red pigment were found in the adjacent floor debris, here 30 cm. thick, leading Coe to believe that a grave or cache within the building had been looted (Tikal Report No. 1, p. 8). This situation prompted excavation of the pit below floor level during the 1958 field season; further investigation of the temple and west slope (i. e., the front) of the pyramid in 1959 contributed additional evidence of activities which had taken place in the building.

Coe's assumption that there had been relatively recent disturbance of a grave or cache within the temple, based on the occurrence of unassociated stingray spines above floor level and on their known ceremonial usage and inclusion in graves and caches at Tikal, was confirmed during the 1959 field season when Caches 49 A and B were found associated with Lintel 3 in the tops of the north and south walls of the doorway between Rooms 2 and 3. These caches had formerly been covered by the center beam of the lintel but had been exposed when it was removed by Bernoulli's men. Cache 49 B, in the south wall, was completely empty but for one small barnacle coated with red paint later identified as cinnabar. For some unknown reason, the other portion of the offering, Cache 49 A, similarly placed in the north wall, was undisturbed, although exposed. It consisted of marine material—sponge, sea shells, coral, seaweed, a slab of coquina, and stringray spines—all liberally covered with cinnabar. It is not known by whom or at what time the contents of Cache 49 B were removed, but it is obvious that it was subsequent to the removal of the beams in 1877.

Excavation in 1958 and 1959 of the large rectangular pit noted in 1957 (Fig. 38, plan; Fig. 39 a, b) showed that the cut had been made through a floor composed of four superimposed layers of hard white lime-concrete and continued down into the underlying fill of the temple platform. Careful examination and separation of the various layers revealed the uppermost as a thick, secondary patch covering the area between the doorway jambs and extending from the rear wall of Room 3 to the step up from Room 2. The edges of the patch were neatly "feathered" into the surface of the floor which it joined, making the joint almost imperceptible. Although the patch had been broken through at some later time, from the portion that remained it was evident that first-class workmanship had been employed in restoring the cut top floor to its original condition. Along the east and west edges of the cut were shallow, oval-shaped depressions roughly gouged into the surface (Fig. 38). Seven were clearly defined on the east side, but on the west side, where the floor was not so well preserved, only four could be positively identified. Indications of two more were less definite, making a probable total of thirteen. The outer edges of the depressions were not in straight lines, but formed shallow arcs extending between the doorways jambs. The longitudinal axis of each separate depression radiated toward the center of the doorway, but not to a common point. They varied in size, ranging from 7 cm. to 12 cm. in width, and from 1 cm. to 4 cm. in depth. Their exact lengths are unknown because the edges of the cut for the pit pass through each, but it is estimated that they were originally 20–25 cm. long. The bottom surface of all the depressions showed varying degrees of burning, and it was

evident that the burning took place before the original floor had been broken through because the vertical faces of the cut edges were clean and white, with no indication that they had ever been exposed to heat. Where a section of the floor had been stripped away on the west side, exposing three of the stone blocks which form a 27 cm. step up from Room 2, heavy deposits of carbon and burned copal were found in pockets between the sides of the stones. The stones themselves were deeply calcined and blackened, indicating intense, concentrated heat.

At the rear wall of Room 3, on the east–west axis of the building, an area of the floor, 60 cm. square, was heavily burned. In the center was a small, irregular spot of bright blue paint and a thin layer of burned copal resin. The wall was coated with thick black soot, deposited directly on exposed wall stones where patches of plaster had peeled away (Fig. 40 a). Further evidence of ceremonial burning was found on the floor of Room 2 and between the jambs of the doorway leading from Room 1 to Room 2. Here, thick incrustations of burned copal resin covered large areas of the floor and the lime-concrete showed the calcining effect of intense heat. On these same floors is a tangle of crude graffiti. It could not be determined when these incised drawings were made, but it was noted that some of them underlay the charred remains of copal, and the burned condition of the floor indicated that they were scratched into the surface prior to the burning. These random drawings are in no sense a formal type of architectural decoration. Such graffiti are found on the walls of many buildings at Tikal (Maler, 1911, pp. 56–63), and similar drawings have been recorded at Uaxactun (A. L. Smith, 1950) and various other sites.

Negative and positive red imprints of hands were found below and above the springline of the vault on the east side of Room 1, and the remains of one positive imprint could be seen on the west side of the vault of Room 2 (Coe, 1958, p. 80). The imprints are randomly placed and form no decorative pattern as a group. Except for the facts that the paint is over the last coat of plaster and that no trace of similar imprints was found on underlying coats exposed to date, there was nothing to indicate whether they had been made during the functioning period of the building or at some later time.

Cache 37, containing four copal balls (Fig. 40 b), was exposed on the surface of the floor of Room 1 by a hole in front of, and under the step up to Room 2 (Fig. 38, section; Fig. 40 b). This cache is described under "Burials and Cache." Surface debris overlying the narrow terrace formed by the pyramid top (Fig. 38) and the pyramid stairway yielded numerous fragments of pottery, but no complete vessels were found. On the top terrace level and in the debris over the temple platform stairway were many flint flakes and sherds, most of which will be shown to have come from graves within the building.

Near the base of the pyramid stairway (at the level of the third tread) was a layer of charcoal, burned *ramon* seeds, and unidentified seed pods. The layer was concentrated on the center line of the stairway as though the materials had been piled in one spot and burned. It did not suggest the remains of accidental or general burning in the area, and the heavy concentration of seeds did not have the appearance of a camp or cooking fire. If this burned area was the result of a ceremonial fire or offering, it is apparent that the activity took place some time when the temple and pyramid were in an advanced state of deterioration. Below the charred material was a layer of debris, approximately 50 cm. thick, overlying the lower steps. It consisted of humus, building stones, mortar, and plaster which must have fallen from above when the building first began to disintegrate. The single "X" Fine Orange (Yalton Black-on-orange) sherd (Fig. 43 d) is from this level. No estimate can be made of the time required for the accumulation of subsequent debris, but the burned area was covered by

a layer approximately 1.25 m. deep. Sherds were found in this area, but none positively associated with the fire.

EXCAVATION OF BURIAL PIT

After the rooms of the temple were cleared of surface debris, attention was turned to the previously mentioned pit which was cut through the floor of the doorway between Rooms 2 and 3. The total depth of the excavated pit was 1.78 m. below the surface of the top floor, and the material with which it was filled was separated into three distinct stratified "units" (see Fig. 38).

STR. 5D-1: UNIT 1

This, the uppermost unit, extended to a depth of 85 cm. below the level of the latest floor. The material consisted primarily of masonry debris fallen from above–vault stones, mortar, and wall plaster. Wood chips, apparently incident to the removal of lintel beams by Bernoulli's men, were intermixed, but no carved fragments were found. More important, the north half of the unit also contained the chopped-off, uncarved butts of lintel beams. The topmost lay 27 cm. below floor level, and the lowest was at a depth of 75 cm. Several rough poles were imbedded in the debris to the same depth as the lowest beam fragment. These were of relatively recent date since they obviously had been cut with a steel implement. Around the beam butts was a considerable amount of formless, rotted wood. Unit 1 contained no pottery or cultural material other than the beam butts and masonry debris. When the pit was re-dug in 1959, one fragment of worked stone was found which has the appearance of a rounded stela corner, but it is not possible to say that the fragment was originally contained in this unit. It may have been intruded during refilling of the pit following Adams' 1958 work. All of the material was characterized by a dusty, white color due to the inclusion of lime mortar and plaster dust.

STR. 5D-1: UNIT 2

This unit contained Burial 5. It began precisely at a depth of 85 cm. below floor level where it was marked by a striking difference in color as compared with Unit 1 (Fig. 39 c). The fill consisted of a mixture of soft brown material, charred chips of zapote wood, and large quantities of rodent trash. The rodent trash comprised unburned seed pods, rodent bones, twigs, and burned *ramon* seeds. A large wasps' nest was found loose in the fill at a depth of 1.50 m. The matrix of Unit 2 was composed of a great quantity of the soft brown material. It was 49 cm. deep on the south side and 87 cm. deep on the north. This material is assumed to be bat dung, such as that found in numerous buildings at Tikal. Intermixed in the fill, in meaningless confusion, were human bones, pottery, obsidian flakes, and a large quantity of copal, one lump of which contained a jade bead. Unit 2 was originally 49 cm. thick throughout but the north end of Unit 3, a cist grave (Burial 6), had been broken into, and Unit 2 intruded into the lower stratum. Burial 5 contained the major portion of the cultural material recovered from the pit, but no pattern of the original placement of the contents or the burial position could be determined. The human bones were scattered about, disarticulated and, in some cases, broken. The skull was completely shattered and certain fragments showed evidence of burning. Pottery was also broken and indiscriminately intermixed with the fill from the 85 cm. level to the 1.65 m. level in the south end of the pit. The pottery, like some of the bones, showed evidence of burning after having been broken. Some of the sherds were blackened, while others from the same vessels were

unburned.

On the west face of the pit was a severely burned and smoke-blackened area. The level of the fire was clearly marked, 1.25 m. below floor level, by a thick black line of calcined stones and mortar of the building platform fill. This line was in the form of a shallow fire-pit just about at the line of separation between Unit 2 and Unit 3. Although the actual fill on which the fire had been built was not detected, it was obvious that the pit had been open above when the burning took place. Other traces of fire were seen on the east edge of the pit, but they did not extend more than 15 cm. below the floor surface, indicating that those fires had burned when the pit was filled to that level.

STR. 5D-1: UNIT 3

Burial 6 was contained in this unit, and it was for the construction of its grave that the original cut had been made through the floor of Temple I (Fig. 39 d). The grave was a cist type which occupied the entire bottom of the pit from the 1.23 m. level to the 1.78 m. level below the top floor. It was 1.87 m. north–south by 1.37 m. east–west, and was covered by a roof of small unshaped stones laid in exceedingly tough lime mortar. Over the roof was a heavy layer of flint chips, also set in mortar. This layer was the separation line between Units 3 and 2. From the way the masonry of the roof and the layer of flint chips abutted the sides of the pit, it was evident that the grave had been intruded into existing fill and had not been an integral part of the construction of the building platform. As mentioned above, the roof of the grave had been broken into at the north end and Unit 2 intruded into that area.

Burial 6 had been looted, and the only remains were found in the south end, under the undisturbed section of the roof. The grave contained rodent trash and a small amount of the soft brown material which had sifted down from Unit 2. This substance was on top of everything in the grave. A layer of white material, probably stone and mortar dust produced when the pit was dug, overlay the bottom of the cist. In it were a few fragments of human bones and the only pottery found in the grave—one sherd which fits other sherds of a Zacatel Cream-polychrome plate (Fig. 41 a) was found in Unit 2.

After we had removed the remains of Burial 6 and completely cleared the pit, we carried the excavation down through the fill to the level of the pyramid top on which the building platform rests. This pyramid top was surfaced with a hard lime-concrete floor which lies 80 cm. below the bottom of the pit (Fig. 38).

BURIALS AND CACHE

BURIAL 5
(Fig. 38)

Location. Temple I (Str. 5D-1), intrusive pit between jambs of doorway to Room 3; burial pertains to Str. 5D-1: Unit 2. Excavated as 4C-Lot 2.

Grave type. Simple; burial intruded into pit cut originally for Burial 6.

Age, sex. Adult, female.

Position. Disturbance subsequent to interment makes it impossible to say with certainty. The north–south dimension of the pit would not preclude an extended position.

Furniture. Parts of 4 flaring- or outcurved-side tripod plates (two shown in Fig. 41 b, d); 3-plus censers (three shown in Fig. 42 a-c); 3-plus utility vessels (Fig. 43 a-c), and remains of a large effigy vessel (Fig. 43 e). These were so fragmentary and disturbed by later activity as to make it impossible to determine their original positions. A jade bead was also included in one of the many pieces of unburnt copal mixed through the dark brown matrix of Unit 2.

Skeletal material (studied by William A. Haviland, who provides the following data). Burial 5 comprises most of the recognizable and diagnostic bones of an adult female. The appendicular skeleton particularly is well represented, with the exception of both humeri, all traces of which are lacking. This material is only briefly described here, as it is planned to deal more fully with this and other skeletal material from Tikal in a future publication.

Skull:	Represented by small fragments only, some showing evidence of burning. Reconstruction impossible.
Vertebrae:	5 cervical, 12 thoracic, and 5 lumbar recovered, plus two small fragments. One vertebra had been burned.
Clavicles:	Right and left complete, the right having been burned. Maximum length (right) 13.9 cm.
Sternum:	Represented by both corpus and manubrium. The corpus is perforated by a sternal foramen near the distal end. Maximum length (corpus and manubrium) 15.1 cm.
Ribs:	14 fragments preserve the articular surface.
Pelvis:	Right and left innominate and sacrum preserved. The total pelvis displays the following female characteristics: wide pelvic inlet, laterally projecting iliae, shallow sciatic notch, short pubic symphisis, wide sub-pubic angle, and wide sacrum.
Scapula:	One small fragment preserved.
Radii:	Complete right and proximal portion of left. Very slight bowing apparent. Maximum length (right) 22.2 cm.
Ulnae:	Complete right and upper portion of left. Very slight bowing, as with radii. Maximum length (right) 23.9 cm.
Femorae:	Complete right and proximal portion of left. No bowing apparent, musculature apparently moderate. Maximum length (right) 39.4 cm.
Patellae:	Both right and left.
Tibiae:	Complete right, left missing proximal articular surface. Maximum length (right) 33.3 cm.
Fibulae:	Complete left, distal and proximal portions of right. Maximum length (left) 33.5 cm.
Hand and Foot bones:	56 recovered.

The following bones are in excess to the above, belonging to a second adult individual: tibiae, 2 distal end fragments; ulna, 1 proximal end fragment; patella, 1; talus, 1. Of these, one tibia fragment and the ulna fragment surely came from the undisturbed portion of the Burial 6 cist. The remaining three bones are of unknown provenience, presumably having been mixed in with the remains of Burial 5. Thus, the one ulna and tibia belong with Burial 6; the patella, talus, and second tibia probably are those of the same individual.

Stature: For Burial 5, 154.806 cm. $\pm$ 2.99. The formula used is that of Trotter and Gleser,

(1958, p. 120) derived for modern Mexicans, based on the femur. We would like to emphasize, however, that this information should be used conservatively, as the correlation of long-bone length to stature is not perfect. Further, as Trotter and Gleser themselves point out, this correlation varies both by population and through time.

Sequential position. Structure 5D-1: Time-span 2, Post-Classic. See Table 1.

BURIAL 6
(Figs. 38, 39 d)

Location. Temple I (Str. 5D-1), intrusive pit between jambs of doorway to Room 3; stratigraphically below and anterior to Burial 5 (Str. 5D-1: Unit 3). Excavated as 4C-Lot 1.

Grave type. Cist, roofed (see "cist," A. L. Smith, 1950, p. 88; this term has been by necessity modified in the case of Burial 6).

Age, sex. Adult; sex indeterminate.

Position. Disturbance subsequent to interment makes it impossible to reconstruct position. However, considering the type of grave and the fact that there was insufficient space for a seated type of burial, the body was probably extended or flexed on its side.

Furniture. Only the Zacatel Cream-polychrome tripod plate (Fig. 41 a) can be certainly assigned to this burial. The proof of assignment lies in the one sherd of the vessel found within the white layer of Unit 3.

Skeletal material. The excess of material in terms of the Burial 5 individual presumably pertains to Burial 6. As noted under Burial 5, an ulna and tibia surely come from the undisturbed portion of Burial 6.

Sequential position. Str. 5D-1: Time-span 3; associated with pottery typologically similar to that of the Tepeu 2 phase at Uaxactun and necessarily no earlier than 9.13.3.0.0–9.14.0.0.0, the suggested Dedicatory Date limits of Lintel 3 (Satterthwaite, in Tikal Report No. 6, Appendix). Late Classic. See Table 1.

CACHE 37
(Figs. 38; 40 b, c)

Location. Temple I (Str. 5D-1), under front of step to Room 2 (Figs. 38, 40 c). Simple intrusive repository on central east–west axis of room where part of the step had been broken and the fill scooped out to a depth of 10 cm. below the floor. Unsealed repository was 19 cm. wide and extended 27 cm. under the step.

Contents. 4 balls of copal (Fig. 40 b).

Arrangement. Grouped together, standing on their evident bases.

Description. Apple-shaped. Each approximately 8 cm. in diameter. Each ball was painted with a bright blue pigment, apparently the same as that found on the floor of Room 3, near the center of the rear wall (Fig. 38). The bottom surfaces were unpainted but bore the imprints of corn husks (Fig. 40 b); identification by C. L. Lundell. The balls had apparently been placed on a flat surface covered by husks after they had been shaped but were still in a plastic state. The copal appears in each case to have been built up on a thin stick, one end of which protruded slightly above the top of the finished ball. Could these have been wicks?

Discussion. The repository and contents were inexplicably undisturbed since the cut in the floor and step were clearly visible and the copal balls were covered only by dry, powdery fill. There was no evidence that the intrusive repository had ever been more securely

sealed. Presumably Cache 37 represents an offering. The possibility that the copal balls were simply stored here for protection is, however, worthy of consideration. In neither case—offertory or storage "cache"—were the copal balls necessarily hidden. Concealment is the binding trait of practically all deliberate deposits found to date at Tikal which have been categorized as "caches." The fact is that intrusive structure caches, prevalent, for instances, in Str. 5D-34, were not successfully concealed. Floor patches or plugs in effect did mark locations (see Tikal Report No. 13 for description and, particularly, discussion of terminology). Stratigraphy and the associations of copal elsewhere in the temple rooms argue that Cache 37 was an activity contemporaneous with Burial 5. Brief note of this cache is given in Tikal Report No. 13.

Sequential position. Str. 5D-1: Time-span 2. Post-Classic. See Table 1.

ARTIFACTS

STONE

FLINT

Considerable quantity of flakes. Provenience: layer in the top of the lime-concrete roof of Burial 6. These were deposited at the time of the burial. Other flint flakes recovered from terraces and pyramid stairway are not included here. The flint from Burial 6, all in the form of flakes, is classified by Vivian L. Broman as follows:

15	core trimming flakes (mostly cortex)
641	primary flakes
33	used flakes
1	steep-end and side scraper
1	scraper flake
2	notched flakes
27	prepared-platform flakes
1	perforator

Comment. As indicated in its description (p. 123), Burial 6 is Late Classic in date. Two instances from Uaxactun of the use of flint flakes to cover the roof of a burial are both Early Classic. Both these examples, Burials A20 and A22, are "chamber a" (i. e., "tomb") type burials (A. L. Smith, 1950, p. 96). Thus the custom seems to have been a trait that carried through the Classic Period. What its significance is we are unable to say.

OBSIDIAN

2 obsidian flake-blades and 1 flake-blade fragment. Provenience: casually mixed with the other cultural material in the fill of Unit 2.

JADEITE

1 bead. Provenience: Unit 2, embedded in a piece of copal. It is a barrel-shaped, biconically drilled, polished, uncarved bead. Somewhat irregular on the ends, it is fairly symmetrical at its central diameter. Diameter, 0.8 cm.; diameter of bore, 0.35 cm.; length of bead, 1.1 cm.

SLATE

1 unworked fragment. Provenience: Unit 2.

Comment. A considerable number of slate fragments, some definitely from one or more carved monuments, have been encountered superficially in the Great Plaza and North Terrace area, especially in the vicinity of Temple II (Str. 5D-2). For full information, see Tikal Report No. 12.

STINGRAY SPINES

Two whole and 1 fragmentary spines. Provenience: found outside the pit during preliminary investigation of the temple rooms by Coe. All show traces of a red pigment. These are fully treated in Tikal Report No. 13 as parts of Cache 49B (associated with Lintel 3), now realized to have been their source (see Tikal Report No. 1, p. 8).

COPAL

Provenience: Unit 2, on the temple floor, and in Cache 37. Occurred both burnt and unburnt. The burnt copal adhered to the uppermost floor of Room 1, on the central axis, and to the floor between the jambs of the doorway to Room 2. Burnt copal from Unit 2 came exclusively from within certain of the censers. The unburnt copal in Unit 2 was scattered throughout the fill and occurred in large (fist-sized) lumps as well as in smaller ones which grade down to a dust. Cache 37 (see description, p. 123) contained four balls of blue-painted, unburnt copal.

Comment. Burnt copal was also found in graves at Uaxactun (A. L. Smith, 1950). It is possible that the Uaxactun and Tikal examples are simply residue of copal burnt during funeral ceremonies. It will be noted that Burial 5, in Unit 2, is regarded as Post-Classic and therefore this copal burning would be of the same date. Some burnt copal overlay graffiti inscribed on the floor within the doorway to Room 3. The Appendix, relating to late activity in Temple II, records other evidence of the use of copal.

CERAMICS

Most of the ceramic material is from Unit 2. One sherd, chronologically significant, comes from the white layer in Unit 3. In addition, some sherds were found outside the pit in 1957 and on the pyramid slope in 1959. These produced direct fits with the fragmented vessels from within the pit. To a certain extent, the ceramics can be regarded as associated types, with the important exception of the Zacatel Cream-polychrome plate from Burial 6 (Fig. 41 a).

The material is analyzed here, using R. E. Smith's form terms (1955) and the Munsell system for color. Ceramic type designations defined to date in the Tikal type study collection (see also R. E. Smith and Gifford, 1959) are used with reference to specimens that can be identified with certainty.

A summary of the ceramics follows.

1. FLARING-SIDED, TRIPOD PLATES

a. Red-black-on-cream (Zacatel Cream-polychrome) plate (Fig. 41 a), restorable from

sherds representing about one-third of the vessel. One unburned sherd came from the white layer covering the bottom of the burial pit (i. e., Unit 3) and was the only ceramic item associated with Burial 6. Other sherds, some showing differential burning, fitting the same polychrome plate, were recovered in Unit 2 with Burial 5. This plate is the only vessel actually from the burial pit assignable to the Late Classic Period (contemporaneous with Uaxactun Tepeu 2). It almost exactly duplicates Palmar Orange-polychrome and Zacatel Cream-polychrome examples found at Uaxactun (see R. E. Smith, 1955, Fig. 55*a*, 6, 9). The exterior motif is the "dress shirt" design mode which was found on another Tikal vessel (Tikal Report No. 2, Fig. 14) belonging also to the same ceramic complex.

b. Red-black-on-orange (Ixpop Polychrome) plate (Fig. 41 b). This vessel form, except for the rim treatment, occurs in Early Post-Classic "X" Fine Orange at Chichen Itza (Brainerd, 1958, Fig. 81) and at Uaxactun (R. E. Smith, 1955, Fig. 55*b*, 5). The decoration on the Ixpop Polychrome specimen shown in our Fig. 6b has much in common with that displayed by "X" Fine Orange examples cited.

The slightly bell-shape, cylindrical foot mode is very interesting since this kind of foot on a plate with flat base, straight flaring walls, and direct rim seems to have had a widespread Post-Classic distribution. This kind of foot was found by William T. Sanders in his excavations of Post-Classic sites of the east coast of Yucatan (W. R. Bullard, verbal communication). It is also found in what is apparently the latest horizon at Barton Ramie (New Town Phase) and at Baking Pot on the Belize River, British Honduras (J. C. Gifford, verbal communication). The complete vessel form with bell-shaped feet is found at Topoxte on the surface (W. R. Bullard, verbal communication). This latter site (Bullard, 1960) is only about 30 kilometers due southeast from Tikal. Bell-shaped feet are found around Lake Peten Itza and are in the Tikal Project purchase collection from San Andres and in a surface survey collection from the site of Paxcaman, as well as in the collections of the National Museum of Guatemala (Berlin, 1955, Fig. 1 a). W. R. Bullard has stated in conversation that Guthe's collections from Tayasal ruin also include this bell-shaped foot mode and presumably the vessel form in combination.

It bears repeating that although the piece in Fig. 41 b is not Fine Orange (this ware does, however, occur in the Temple I collection; see p. 128), it does have some resemblance in form, style, and technique of decoration to certain Fine Orange vessels. None of its associations contradict this indication that the piece is Post-Classic.

A comparable vessel, from Temple II, is described in the Appendix (see Fig. 41 c).

c. Red monochrome (Paxcaman Red) tripod plates (2) with scroll foot (one illustrated in Fig. 41 d). This particular foot mode, here called the "scroll" type, was recognized and described first by Berlin (1955, Fig. 1 b, c). The foot is characteristically cylindrical but turns out and upward at the base to form a sort of scrolled toe. The feet may be plain or effigy. At Tikal, a specimen of the plain red type came from the Temple I excavation (Fig. 41 d) and an effigy example is in the Project purchase collection from San Andres on Lake Peten Itza. Berlin illustrates the effigy type in his paper.

The two vessels under discussion are identical to others in the National Museum of Guatemala which were excavated during the process of modern construction in Flores, Peten. These were personally examined. They occur invariably, so far, in association with the vessels having the bell-shaped foot mode previously described and in the Project San Andres purchase collection, from Paxcaman and other sites around Lake Peten Itza. The vessel form combined with this type of foot also occurs at Topoxte (W. R. Bullard, verbal communication) although somewhat rarer quantitatively than the bell-shaped foot mode.

With the possible exception of Barton Ramie in British Honduras (Willey and others, n. d.), the scroll-foot mode has not been precisely placed chronologically by excavation elsewhere, occurring only in surface or salvage collections. However, nothing found outside Tikal contradicts the idea that the mode is Post-Classic as suspected by virtue of its association with the censers (described below) and bell-shaped foot mode in our excavation. The Cowgill expedition (George Cowgill, verbal communication) also found the association of bell-shaped feet with scroll-feet in sites of the Lake Peten area, and evidence at Barton Ramie further substantiates the contemporaneousness of these two foot modes (Gifford, in Willey and others, n. d.).

2. CENSERS

Non-effigy, pedestal base, sherds of possibly 5 censers; 3 illustrated (Fig. 42a, b, c). The form and decoration of these censers are very similar to censers from northern Yucatan, attributed to the Mexican Period by Brainerd (1958). There is, however, some question as to whether or not such censers were restricted to the Late Mexican substage (cf. his Figs. 97a, b, c, f; 104d, 1, 2; and p. 81, second column). Brainerd also states (ibid., p. 154, Fig. 23e): "This form, because of its presence at Mayapan, where Early Mexican substage wares are nearly absent, is suspected to date Middle Mexican substage or early Late Mexican substage." It is important to note that Brainerd, by using the phrase "nearly absent" in the above passage, does not find Early Mexican substage ware completely lacking in Yucatan. Edwin M. Shook, who is very familiar with the pottery of Mayapan, also substantiates (verbal communication) the fact that this type of non-effigy censer is found in identical form at that site, validating in part Brainerd's appraisal. But, as noted, this censer type could extend back into Middle Mexican times (that is, prior to the estimated 11.3.5.0.0 to 11.10.0.0.0 time interval allowed for the duration of the Late Mexican substage) and possibly even earlier. R. E. Smith informs us (verbal communication) that based upon his own most recent analysis of Yucatan pottery, it can be said that this censer type with slight but important modifications as to applique decoration is present in Early Mexican times at Mayapan and Chichen Itza.

Turning to the Peten area for comparative material, both effigy and non-effigy types of censers were found on the surface at Topoxte (W. R. Bullard, personal communication, January 27, 1959). In addition, a rim sherd from a censer of similar appearance was collected on the surface from a small architectural group on the southern outskirts of Tikal together with pottery typologically similar to material identified at Uaxactun as Tepeu 3.

The similarity between the northern Yucatecan Mexican Period censer material and the Temple I censers seems, at the moment, too great to be fortuitous. Since the material is dated stratigraphically only in Yucatan and is intrusive in Temple I, we must give the Yucatecan dating due consideration. In Yucatan, an early 13th century to middle 15th century time-span for such censers is indicated as the most probable time value, based upon Brainerd's evidence, if we accept a date of approximately A. D. 1200 for the conclusion of the Early Mexican substage and about A. D. 1450 for the collapse of Mayapan.

3. UTILITY VESSELS

Two utility jars (Fig. 43a, b) were found in fragmentary condition. These are of a shape and ware so long-lived as to be chronologically difficult to place. Also found was a fragmentary annular base sherd (Fig. 43c) which was apparently utility ware. By their association with the Post-Classic censers and tripod plates, these pieces can probably also be placed in the Post-Classic.

4. MISCELLANEA

a. *1 unslipped clay ball fragment.* Probably a pellet from a broken leg of one of the vessels. From within pit.

b. *1 fragment of a large, flat-based, effigy vessel* (Fig. 43 e). From within pit.

c. *2 monochrome sherds with red slipped interiors, unslipped exteriors;* evidently from a plate (thickness, 0.7 cm.). These came from outside the pit, as did the following items (d, e); these together form the exception to the fact that sherds from outside the pit were precisely of the same ware as of those found within it.

d. *1 Black-on-orange polychrome sherd.*

e. *1 "X" Fine Orange (Yalton Black-on-orange) sherd* (Fig. 43 d).

DISCUSSION OF CERAMICS

The ceramics bear out the apparent separation of material in the pit by stratigraphy; the Zacatel Cream-polychrome plate, being the only vessel with fragments in both Units 2 and 3, would seem to set Unit 3 off chronologically as well as physically.

Comparative evidence indicates that all pottery from the excavation is either Late Classic or Post-Classic. Examined on the basis of form and decoration, the Zacatel Cream-polychrome sherds provide the one piece of pottery in the series of flaring or outcurving-side tripod plates that is of a date equivalent to Uaxactun Tepeu 2. The other tripods are Post-Classic on the basis of their form and decoration. The censers found in association with these tripod plates seem to be similar to those of the Late and Middle Mexican substages of northern Yucatan. It has also been noted that the tripod plates have certain pronounced form and decorative resemblances to "X" Fine Orange, a ware which has been convincingly dated to the Early Post-Classic or Early Mexican substage of northern Yucatan (Brainerd, 1958; R. E. Smith, 1958–59, pp.153–155). The single true "X" Fine Orange sherd (Fig. 43 d) among the Tikal materials under discussion could be more definitely attributed to that era though Brainerd (1958, p. 95) does note persistence of this ware into Middle Mexican substage. As discussed on p. 119, this sherd stems from a deposit on the stairway base that would appear to be contemporary with the activity responsible for the placement of Burial 5. In other words, we are faced with ceramics that in terms of the northern Yucatecan pottery sequence could be referred to practically the total span of the Post-Classic there.

Censers and vessel forms, identical to ours, have been reported from at least two sites other than Tikal in the Peten area: Topoxte and Flores. At Barton and Baking Pot, British Honduras, Ixpop Polychrome and Paxcaman Red occur but the censer type is absent. The distribution indicates that we are dealing with a fairly widespread Post-Classic Period manifestation in the Central Area. W. R. Bullard also believes present evidence supports this contention. Whether or not the occupation, if it was such, was a Late Classic to Early Post-Classic continuity or a Late Post-Classic re-occupation at Tikal and elsewhere, is a question to be answered by more excavation. Doubtless, intensive investigation at Tikal will define this Post-Classic era more fully. For further evidence and discussion of Post-Classic activity at Tikal and elsewhere in the Central Area, see Tikal Reports No. 1, p. 19; No. 2, p. 48; No. 3, pp. 75–76.

The Temple I pottery, when viewed chronologically (necessarily in terms of Yucatan), presents various problems, insoluble at the moment. Normally one minimally dates a situation by the latest associated pottery. The censers, in terms of Yucatan, would seem to be later than the tripod plates and the single "X" Fine Orange sherd. However, we know nothing of diffusion, lag, and similar factors. Are these Ixpop Polychrome and Paxcaman Red

plates contemporary imitations—true except for paste and surface colors—of "X" Fine Orange? If so, how are the resemblances between the Yucatecan and Tikal censers to be explained, let alone those from the Motagua Valley (see A. L. Smith and Kidder, 1943, Fig. 22b)? Could this type of censer have begun during the Early Post-Classic Period in the Peten region, to have its distribution shift to Yucatan during later times? Or could the Ixpop Polychrome and Paxcaman Red specimens be vessels looted from earlier deposits and re-used by Late Post-Classic intruders? The evidence of the Temple I finds leaves open the many dating possibilities concerning the Post-Classic pottery involved. At the time of this writing we do not know the answers to these questions.

SUMMARY AND CONCLUSIONS

The limited work on Temple I covered by this report has produced materials and evidence indicating long and varied activities at the site, beginning with the latter part of the Late Classic Period. The conclusions set forth here are necessarily confined to evidence produced by this single structure (though data from Temple II is germane; see Appendix), but future investigations of other structures and in other areas of the site will, no doubt, confirm or dispose the present hazy picture of activities at Tikal during these times. At any rate, the evidence from Temple I is an encouraging indication that future investigations will produce information to aid materially in the clarification of that little-known period in the history of Tikal. With the exception of the first intrusion into the building platform for Burial 6, it is not possible to place all evidence of activities into precise sequential phases. Some are seen only as isolated events; others, like Burial 6, can be tied in architecturally and ceramically, or, like Burial 5, by ceramics alone.

The sequence of significant activity in Temple I (Str. 5D-1) is here presented in terms of time-spans (numbered in reverse order of time) which pertain only to this structure. Time-spans antedating the ones defined here (for summary see Table 1) will emerge as excavations reveal data on sequence of construction, etc.

STRUCTURE 5D-1: TIME-SPAN 3

It has been seen from the floors in Room 3 that three major renewals had been made from the time that the original floor was laid over the underlying rubble fill. No close examination of wall plaster has been made at this time, but it was observed that the walls, too, had been resurfaced many times. In addition to the complete floor layers, the patch between Rooms 2 and 3 had been laid to cover the intrusive pit of Burial 6. At present there is no basis for a reasonable estimate of the elapsed time between each successive renewal of the floor, nor is it known that there was a regular or specific time for this activity. It can only be said that appreciable time intervened between the laying of the original floor and the placing of the patch over the pit after Burial 6 was completed. According to Satterthwaite (Appendix, Tikal Report No. 6), the lintels of Temple I have a "Dedicatory Date" limit of 9.13.3.0.0 to 9.14.0.0.0. Presumably the limit relates to the near conclusion of construction.

The pit for Burial 6 was intruded through the latest floor and was subsequently covered by the well-constructed patch, almost indistinguishable from the original floor. Thus Burial 6 (with Late Classic pottery) took place some time after 9.14.0.0.0, and probably before

10.2.0.0.0, the date of the latest known monument at Tikal. Allowing even a reasonably short interval between floor renewals, and assuming that no great time elapsed between the last floor and the floor patch, Burial 6 would fall somewhere within the last half of the Late Classic Period as represented at Tikal. This is consistent with the condition of the building at the time of the burial and with the pottery recovered from the grave. That the burial took place during the functioning period of the building is strongly indicated by the formal type of grave construction, and by the careful way in which the floor was repaired to abut the walls and join the wall plaster. The former suggests a full ceremonial type of interment; the latter, a well maintained building, in a good state of repair at the time. It has already been noted that the only artifact definitely associated with Burial 6 was a Tepeu 2 tripod plate. The Classic Period evidently closed with the burial undisturbed.

STRUCTURE 5D-1: TIME-SPAN 2

Evidence of activities which can be stated with certainty to have followed Burial 6 is that seen on the floors, especially on the remains of the floor patch between the doorway and in Room 3. The shallow, burned depressions, the remains of burned copal, and the spot of blue paint at the base of the wall in Room 3, Burial 5, and probably some, if not all, of the graffiti are subsequent to the laying of the floor patch.

The function of the shallow depressions could not be determined, but it was clear that they had been gouged and chipped into the hardened lime-concrete of the patch. Their burned condition and the calcined spots on the surface of the floor below suggest that they may have been used as simple incensarios, but no traces of copal were found in them.

The small dab of blue paint and burned copal resin were found on the surface of the floor patch, and soot from the fire was deposited on bare wall stones where plaster had peeled off. The center of the rear wall and the vault area above Room 3 are heavily smoke blackened, but the deposit on exposed stones and underlying coats of plaster strongly suggests that the building was in a state of disrepair when some of the copal was burned.

Additional evidence of the deteriorated condition of the interior of the building at the time copal was being burned for ceremonial purposes is seen in the instances where it was burned on the edge of the step up from Room 2 to Room 3. The deposits of carbon and copal resin between the stone joints are clear evidence that the floor had been broken and the plaster gone from the face of the step at the time fires were built there. It is not unusual to find copal being burned by modern Indians in ancient Maya buildings, and it is quite possible that at least some of the fires and burned resin in Temple I are a relatively recent result of this practice. That practice may have continued intermittently over a long period during times when the building can be said to have been abandoned.

Except for the fact that some of the graffiti were inscribed in the floor prior to the burning of copal which partly covered them, it is impossible to determine their precise place in the sequence of local activities. It is quite possible that, as suggested by Thompson (1954, Fig. 2), these random drawings were the work of bored novices who occupied the building but on first thought it is difficult to conceive of their having been executed by the artists who decorated the buildings or by the priests who practiced their rites in the temples during the Classic Period. Coupled with other evidence of later occupation or use of the temple, it seems more probable that the graffiti were inscribed on the floors (and walls and vaults) by people of Tikal who remained after the cessation of formal ceremonialism in the temple, or by others who came to the site at a later date. It is also possible that the ac-

cumulation of graffiti in Tikal buildings was a continuing process, begun during the active life of the site, and continued by visitors to the present day, although with even less artistic merit.

In passing, we would like to note that, in contrast to the seeming superficiality of the Tikal temple graffiti, at Uaxactun, in Str. B-XIII (Room 2), graffiti seem quite certainly dated as Early Classic (A. L. Smith, 1950, p. 58). Also at Uaxactun, in Str. A-XVII, graffiti can be fairly confidently dated as Late Classic, or even Early Classic; in one instance, they are associated with wall painting and both were covered by new wall plaster, and there exists a second case in which graffiti were covered by paint (A. L. Smith, 1937, pp. 25–26; 1950, pp. 45–46). At Rio Bec, graffiti were found overlapped by masonry (Ruppert and Denison, 1943, p. 36). All known graffiti at Tikal, both in Temple I and elsewhere, will be fully recorded and published.

Cache 37 gives the impression of a hasty, even careless job of concealing (if such was the intent) the blue-painted balls of copal which it comprises. The stones of the step were broken and there was no attempt to repair them or to cover the hole in the floor. Again, there was no evidence to indicate when the objects had been deposited, other than that they had been intruded into essentially the last stage of construction of the temple. The traces of blue paint (and burned copal resin) on the floor in Room 3 may have been the result of similarly painted balls of copal having been burned there. Landa records the ceremonial usages of blue paint among the Maya of Yucatan, specifically the practice of painting balls of copal this color, and large quantities of blue-painted copal balls have been recovered from the Sacred Cenote at Chichen Itza (Tozzer, 1957; see Wauchope, 1948, p. 125 for ceremonial context of blue paint). This parallel ceremonial practice in Yucatan suggests that Temple I may have been visited in Post-Classic times by people from that area, possibly by groups from Lake Peten making a pilgrimage to Tikal.

The red hand imprints in Temple I, Rooms 1 and 2, might possibly have been made by these visitors (for distribution, see Coe, 1959, p. 63). Elsewhere at Tikal, red hands have so far been found only in the Temple of the Inscriptions (see Berlin, 1951, p. 38) and in Structure 4E-37.

During Post-Classic times, Burial 5 was made in Temple I directly over the Late Classic Burial 6. There may have been indications of the earlier burial, or the sèlection of the location may have been merely fortuitous. In any case, the people making the second burial probably found the digging relatively easy and they cleaned out only the upper, unoccupied part of the pit. Apparently they did not break through the roof of the grave of Burial 6 since the evidence is that this was probably the work of later disturbers. However, the possibility should be noted. A number of pottery vessels were put into the grave of Burial 5, including non-effigy incensarios which had been used to burn copal, probably during the funeral ceremonies. Jade was probably included among the deceased's furniture along with perishables of unknown variety. One jade bead went into the grave embedded in one of the many lumps of copal. The evidence of a fire having been burned when the pit was open from the 1.25 m. level to the top suggests a ceremonial fire in connection with the earlier Burial 6, after the masonry roof and flint chip layer had been laid. But, alternatively, it could as well have been a ceremonial fire which preceded the placement of Burial 5 after the pit had been reopened for that purpose. There was nothing to indicate that this was the particular fire which produced the burned seeds, skeletal fragments, and sherds.

Although the evidence is not conclusive, it seems that the grave was left open, allow-

ing bats to make a heavy deposit of dung in the pit. If so, this would suggest that the site was not being used as a ceremonial center in the Classic sense of the term. However, the possibility should not be overlooked that the grave had been covered and reopened within a relatively short time. The identity of the people who made Burial 5 is speculative. The incensario types indicate that they were culturally related to, or in contact with, the Mexicanized cultures of northern Yucatan (see discussion of ceramics, pp. 128, 129).

Burial 5, on the basis of its associated ceramics, is decidedly Post-Classic. The dating of this burial depends on where in the Yucatecan chronology such items as the incensarios and "X" Fine Orange ware belong relative to one another. As we have noted in discussion of the ceramics, there are certain conflicting data that preclude at this time a reasonable temporal estimate. Burial 5 and all activity associated with it would however seem to belong to a time following anything referable to a terminal Classic. Moreover, the pottery types recognized in the Burial 5 context did not appear in small mound investigations (1959)

TABLE 1

SUMMARY OF STRUCTURE 5D-1: TIME-SPANS DEFINED TO DATE

Time-span	Unit	Floor	Ceramics	Burial	Cache	Other data
1						Disturbance of burial pit; refilling of pit; removal of lintels; looting of Cache 49 A; camp fires. Latter half of 19th century.
2	2		Paxcaman Red, Ixpop Polychrome, Yalton Black-on-orange types; non-effigy pedestal base censers; effigy vessel; utility jars, unslipped.	5	37	Burned and unburned copal; blue paint; jade bead in copal; re-use of old shaft of Burial 6; interment of adult female with large quantities of pottery; possible activity at base of temple stairway on fallen masonry; "red hands" and some graffiti of this time? Post-Classic.
3	3	Patch for Burial 6	Zacatel Cream-polychrome type	6	*	Roofed cist grave, intrusive, with flint chips on roof. This time-span may eventually be extended to include temple construction, Cache 49 (*), installation of lintels, floor and wall resurfacings, etc. Present content surely Late Classic and subsequent to 9.13.-3.0.0–9.14.0.0.0, and presumably prior to 10.2.-0.0.0.

which produced a number of Tohil Plumbate sherds. If we regard Ixpop Polychrome as a contemporary imitation of "X" Fine Orange and if we regard the association of the Yalton Black-on-orange sherd as a valid one, the date of Burial 5 would fall somewhere in the 11th or 12th century A. D. However, the possible late dating of the censer material extends the potential time value of this burial into the 15th century. A thorough knowledge of Post-Classic ceramics in the Peten area, particularly about Lake Peten Itza, is clearly called for in this regard.

STRUCTURE 5D-1: TIME-SPAN 1

As stated before, it was not possible to determine with certainty just when Burial 5 was first disturbed, but evidence indicated that the final disturbance was a result of another more recent activity in the temple. It is possible that some one of the early explorers who came to Tikal opened the burial pit prior to Bernoulli's beam-collecting expedition in 1877. One occasion is suggested by the account of the visits of John Carmichael, a Scotsman, who first came to the site in 1869. He reported hidden treasures, but it is not recorded that he actually dug in Temple I. He may have opened the burial pit, leaving the debris and some of the contents scattered about until it was later thrown back into the pit by Bernoulli's workmen. The presence of the chopped-off lintel beam butts within the pit (Fig. 38) is evidence that the refilling of the upper 85 cm. at least took place at the time of the removal of the carved lintels, or before the section of the vault collapsed shortly afterwards. Carmichael's activity at Tikal is only one of the occasions when the grave pit could have been disturbed, but no evidence remains to give substance to such speculations. (See Morley, 1937–1938, Vol. 1, for summary of modern explorations in the Peten.)

In 1877, Gustav Bernoulli sent Indian workmen from the villages of San Jose and San Andres, on Lake Peten Itza, to remove and bring out carved lintels he had seen on his visit to Tikal. The men removed the beams from over the doorway, and cut or burned off the uncarved butts. Whether these same Indians actually dug into the burial pit, or found it already looted and part empty, is uncertain; either would account for the conditions found at the beginning of the present investigations. In any case, some of the material had been thrown out of the doorway onto the west slope of the pyramid. Among the recovered material were large quantities of flint flakes from the layer over the roof of Burial 6, and sherds from Burial 5. One badly weathered sherd recovered from debris overlying the temple stairway was found to be part of a tripod plate which was among the material of Burial 5 within the pit. It was probably during the work of removing the beams and severing the plain butts that some of the pottery and bone fragments were randomly burned. At a time when the pit was partially empty, the workmen threw in the beam butts along with the excavated pit material and bat dung which had long accumulated in the temple. The rough poles found buried in the pit may have been used by the workmen for handling the heavy zapote beams, or as a part of scaffolding for reaching them when they were in place over the doorway. The masonry and part of the vault over the doorway, weakened by the removal of the lintel, soon fell, completing the filling of the burial pit and mounding up on the floor of Room 3. Maudslay, in 1881, probably found the interior of Temple I in much the same condition as did our expedition at the beginning of the investigations in 1957. His published photograph shows vault debris on the floor at that time (Maudslay, 1889–1902, Pl. 68 b).

APPENDIX

TEMPLE II (STRUCTURE 5D-2)–EVIDENCE OF LATE ACTIVITY

Above-floor excavations in the rooms (13 A–Lots 1, 2) and at the entrance (13 B –Lot 1) of Temple II in 1958, by Adams, disclosed certain post-constructional data which wholly or partly relate to Post-Classic activity in Temple I, described in the body of this report.

A. Room 3: copal noted on floor in center of room. Beneath copal was an obsidian flake-blade fragment.

B. Room 2: between jambs of doorway, more copal was noted on floor.

C. Room 1: patches of copal on floor.

Comment. The copal appeared to be unburnt. It was collected for possible radiocarbon analysis (Samples T–10 and T–11).

D. Weathered, incomplete tripod bell-shape foot plate (Ixpop Polychrome) (Fig. 41 c) and lumps of unburnt copal (Sample T–9) were encountered together in rubble on the step leading to Room 1, at a point 1.38 m. east of doorway (that is, in front). A flint projectile point (?) (Fig. 43 f) was located 1.10 m. south of the plate at about the same level.

Comment. Full data on the tripod plate is given in its caption. It is essentially like that in Fig. 41 b, although decorative comparisons are impossible because of the severe weathering; however, traces of red slip are present. The projectile point, it should be emphasized, was apart from the plate and copal. It is illustrated (and described in caption) on the chance that it pertains to the activity responsible for the other items. These remains within and just outside the temple rooms illustrate, in a far subtler way than those in Temple I, continued interest in a major Tikal structure in late times. It is assumed that the deposits of copal within the rooms were contemporary with the remains found outside the rooms. The latter were evidently left where found in rubble that had already accumulated from disintegrating masonry. The incompleteness of the vessel may be either intentional or the result of scattering by further falls of masonry. Why these remains were left where found, within and without the rooms, is a problem. Possibly one or more "surface offerings" are behind such deposits.

The remains found within and without Temple 2 (Str. 5D-2) may be the total content of Structure 5D-2: Time-span 1, which is to be correlated with Structure 5D-1: Time-span 2 (Table 1), principally on a ceramic basis, though the use of copal in this instance could also be considered a connective. Since the activity of removing the lintels here in Temple II in recent times (Tikal Report No. 6) does not seem to have disturbed anything more than the lintels, no provision is made for a separate time-span for this particular activity here as it was in Temple I.

REFERENCES

Berlin, H.

1951 El Templo de las Inscripciones VI de Tikal. *Antropologia e Historia de Guatemala*, Vol. 3, No. 1, pp. 33–54. Guatemala.

1955 Apuntes sobre vasijas de Flores (El Peten). *Antropologia e Historia de Guatemala*, Vol. 7, No. 1, pp. 15–17. Guatemala.

Brainerd, G. W.

1941 Fine Orange Pottery in Yucatan. *Revistas Mexicana de Estudios Antropologicos*, Vol. 5, pp. 163- 183. Mexico.

1958 The Archaeological Ceramics of Yucatan. *Anthropological Records, University of California*, Vol. 19. Berkeley and Los Angeles.

Bullard, W. R.

1960 Maya Settlement Pattern in Northeastern Peten, Guatemala. *American Antiquity*, Vol. 25, No. 3, pp. 355–372. Salt Lake City.

Coe, W. R.

1958 Two Carved Lintels from Tikal. *Archaeology*, Vol. 11, No. 2, pp. 75–80. Brattleboro.

1959 Piedras Negras Archaeology: Artifacts, Caches, and Burials. *Museum Monographs, The University Museum*. Philadelphia.

Kidder, A. V., J. D. Jennings, and E. M. Shook

1946 Excavations at Kaminaljuyu, Guatemala. *Carnegie Institution of Washington, Publication* 561. Washington.

Longyear, J. M.

1952 Copan Ceramics. *Carnegie Institution of Washington, Publication* 597. Washington.

Maler, T.

1911 Explorations in the Department of Peten, Guatemala–Tikal. *Memoirs, Peabody Museum, Harvard University*, Vol. 5, No. 1. Cambridge.

Maudslay, A. P.

1889–1902 Archaeology. *Biologia Centrali-Americana*, 5 vols. London.

Morley, S. G.

1937–1938 The Inscriptions of Peten. *Carnegie Institution of Washington Publication* 437, 5 vols. Washington.

Ruppert, K., and J. H. Denison

1943 Archaeological Reconnaisance in Campeche, Quintana Roo, and Peten. *Carnegie Institution of Washington, Publication* 543. Washington.

Satterthwaite, L. and E. K. Ralph

1960. New Radiocarbon Dates and the Maya Correlation Problem. *American Antiquity*, Vol. 26, No. 1, (in press). Salt Lake City.

Smith , A. L.

1937 Structure A–XVIII, Uaxactun. *Carnegie Institution of Washington, Contribution No. 20, Publication* 483. Washington.

1950 Uaxactun, Guatemala: Excavations of 1931–1937. *Carnegie Institution of Washington, Publication* 588. Washington.

Smith, A. L. and A. V. Kidder
1943 Excavations in the Motagua Valley, Guatemala. *Carnegie Institution of Washington, Publication* 546. Contribution 41. Washington.

Smith, R. E.
1954 Pottery Specimens from Guatemala: 1: *Carnegie Institution of Washington, Notes on Middle American Archaeology and Ethnology*, No. 118. Cambridge.

1955 Ceramic Sequence at Uaxactun, Guatemala. *Middle American Research Institute, Tulane University, Publication* No. 20. New Orleans.

1958–59 The Place of Fine Orange Pottery in Mesoamerican Archaeology. *American Antiquity*, Vol. XXIV, pp. 153–155. Salt Lake City.

Smith, R. E. and J. C. Gifford
1959 A Check List of Prehistoric Maya Pottery Types and Varieties. *Peabody Museum, Harvard University*, Mimeographed, pp. 1–156. Cambridge. (Revised Preliminary Draft–Sept. 14, 1959).

Thompson, J. E. S.
1954 *The Rise and Fall of Maya Civilization*. Norman.

Tozzer, A. M.
1957 Chichen Itza and its Cenote of Sacrifice: A Comparative Study of Contemporaneous Maya and Toltec. *Memoirs, Peabody Museum, Harvard University*, Vols. 11, 12, Cambridge.

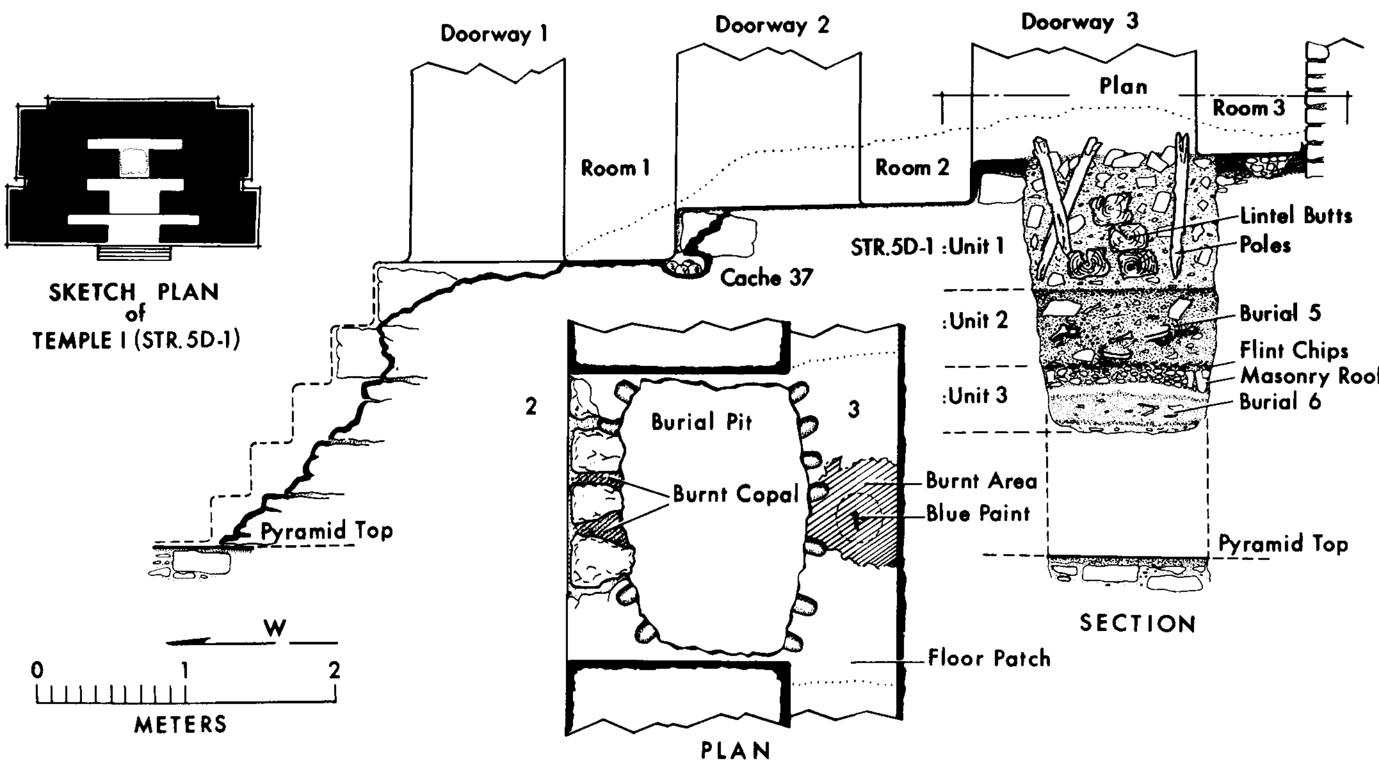
Trotter, M., and G. Gleser
1958 A Re-evaluation of Estimation of Stature Based on Measurement of Stature Taken During Life and of Long Bones after Death. *American Journal of Physical Anthropology*, n. s., Vol. 16, No. 1, pp. 79–123.

Vaillant, G. C.
1927 *The Chronological Significance of Maya Ceramics*. MS. Doctoral Dissertation, Harvard University. Cambridge.

Wauchope, R.
1948 Excavations at Zacualpa. *Middle American Research Institute, Tulane University, Publication* 14. New Orleans.

Willey, G. R., W. R. Bullard, J. B. Glass, and J. C. Gifford
n. d. Prehistoric Settlements in the Belize Valley, British Honduras. *Papers, Peabody Museum, Harvard University*. (in preparation) Cambridge.

TIKAL REPORTS
Nos. 1, 2, 3, 6; also Nos. 12, 13, 14 in preparation.



Temple I (Str. 5D-1), section through building platform and floors. Plan of burial pit between Rooms 2 and 3.

FIGURE 39

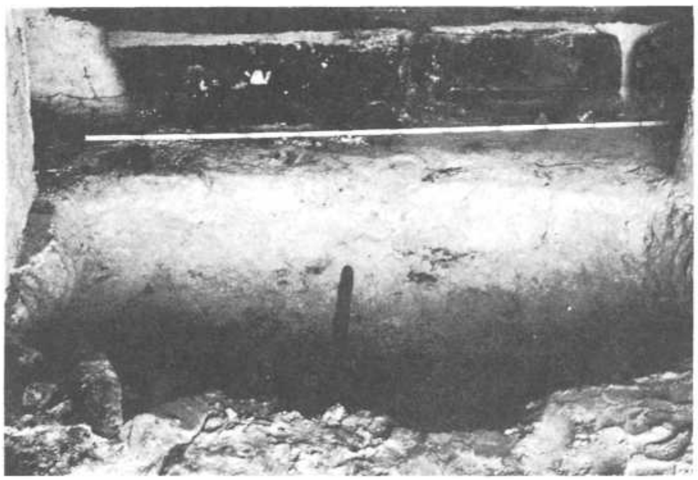
a. Burial pit between jambs of doorway of Room 3, looking east. Butts of lintel beams aligned behind extended rule in background.

b. Same as a but looking to northeast, with north jamb in upper left.

c. East wall of burial pit, showing distinct line left on wall by different coloration of fills in Unit 1 and, below, in Unit 2.

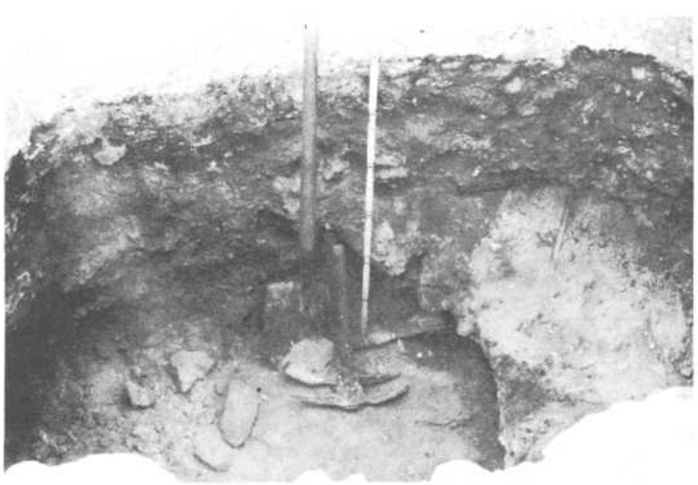
d. View of extant part of grave of Burial 6. Rule rests at bottom of pit.

Fig. 39



a

b



c

d

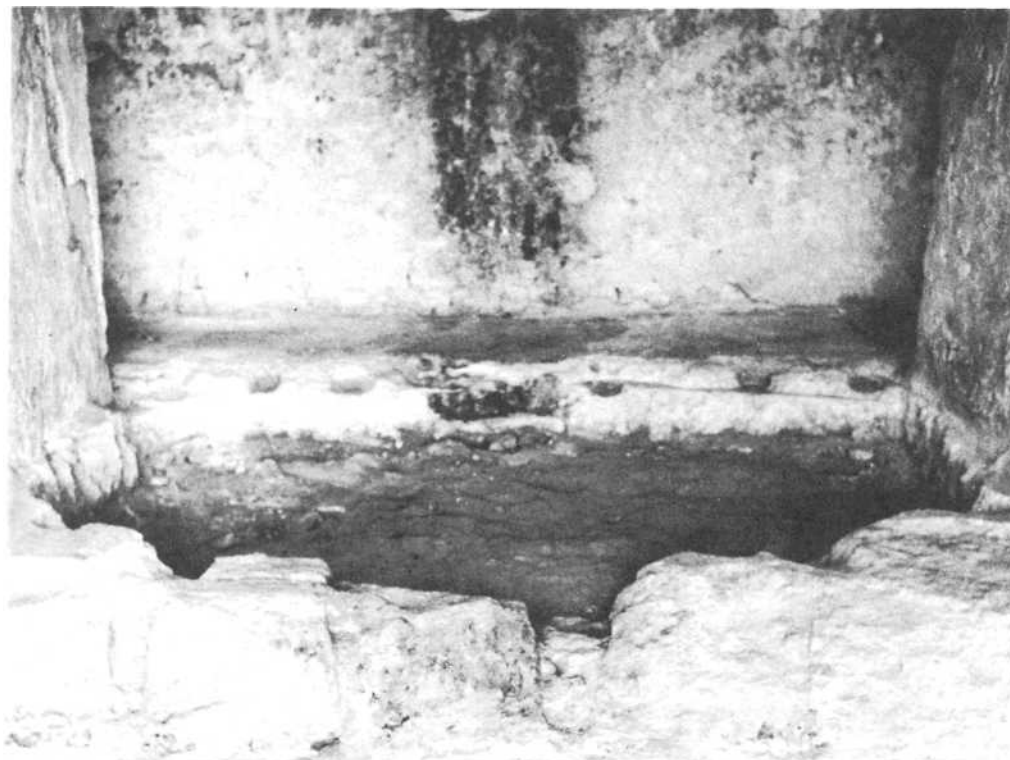
FIGURE 40

a. Burial pit, upon further work in 1959, showing east edge (background) of cut floors and floor patch, shallow depressions cut into floor, and smoke-blackened wall of Room 3.

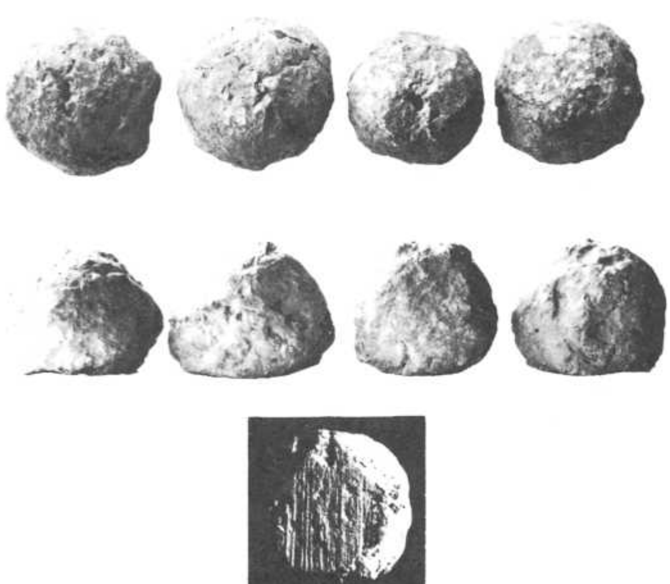
b. Copal balls, top and side views, and one view (below) of base of one ball to illustrate corn-husk imprints seen on all. 1/4 scale.

c. Copal balls in position as Cache 37; see Fig. 38.

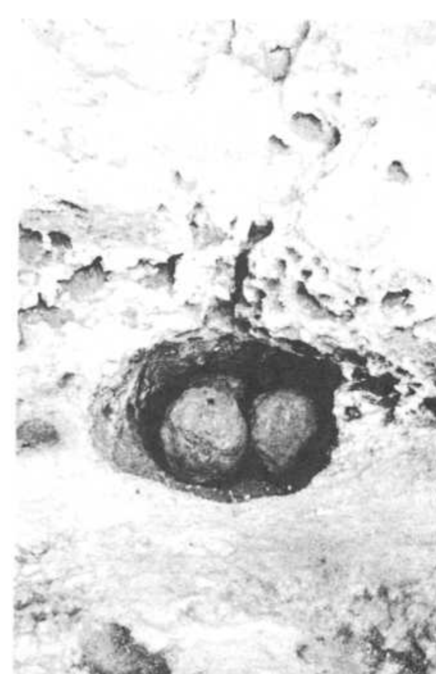
Fig. 40



a



b



c

FIGURE 41

a. Flaring- or outcurving-side tripod plate. Zacatel Cream-polychrome. Feet missing, but probable reconstruction from other complete examples is a hollow, cylindrical foot. Paste: medium fine texture, light gray outer half, pink inner half. Color: Red-black-on-cream. Red, 10R-4/8 (Munsell); Black, 10R-2/0 ranges to Very Pale Brown, 10YR-7/3); Cream, 10YR-8/4. Design: "dress shirt" with cream circles by reserve technique and black circles by true negative technique (R. E. Smith, 1955, pp.59–61). Provenience: Burial 6. Field No. 4C-3. 1/4 scale.

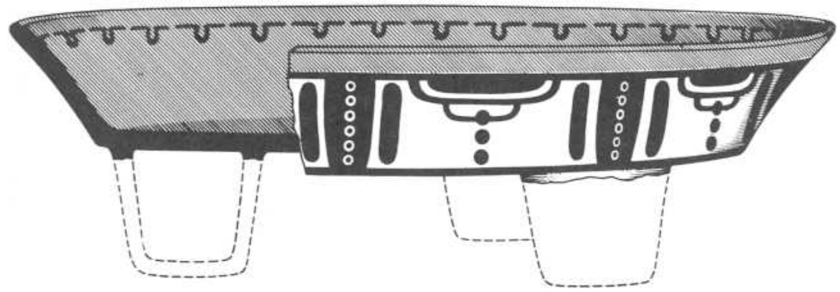
b. Flaring-side tripod plate. Ixpop Polychrome . Feet cylindrical, unpierced and no pellets, bases slightly concave to flat. Vessel incomplete and considerably burned after breakage, making exact color determination uncertain. Paste: fine texture, light gray to pinkish buff. Color: Red-black-on-orange. All exterior Red (except on bottom of feet) 10R-4/6. Interior, Orange, 7.5YR- /6; Black, 10YR-2/1; Red, 10R-4/6. Design: curvilinear type motif reminiscent of Etznab day sign. Provenience: Burial 5. Field No. 4C-1. 1/4 scale.

c. Weathered tripod plate similar to Fig. 41 b. Ixpop Polychrome. Feet have pellet rattle and circular vent on outside. Paste: medium fine texture, pinkish buff. Traces of red slip on exterior and interior. Provenience: Temple II (Str. 5D-2), in surface debris outside doorway (see Appendix). Field No. 13B-2. 1/4 scale.

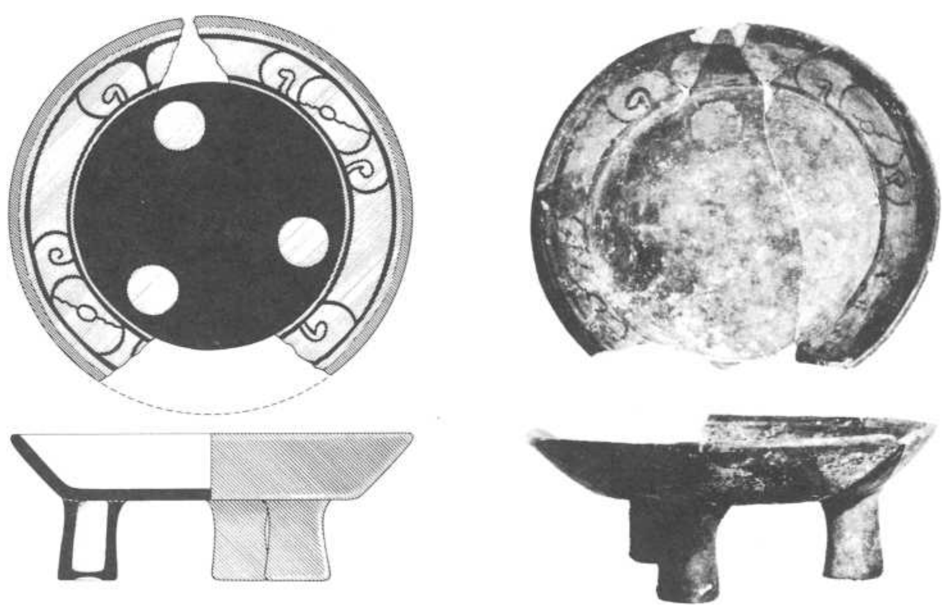
d. Monochrome (Paxcaman Red), flaring-side tripod plate. Scrool type foot, single circular vent in outer wall. Paste: fine texture, pinkish buff, Color: all-over dark red, 10R-3/6, except lower two-thirds of feet. Provenience: Burial 5. Field No. 4C-2a. 1/4 scale.

Not illustrated: Another restorable vessel, Field No. 4C-2b, and two rim sherds of identical type as tripod plate shown here. Fragments burned after breakage. Scroll type foot, unpierced. Provenience: Burial 5.

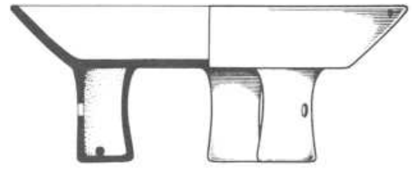
Fig. 41



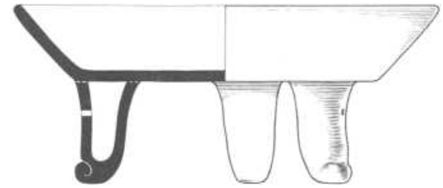
a



b



c



d

FIGURE 42

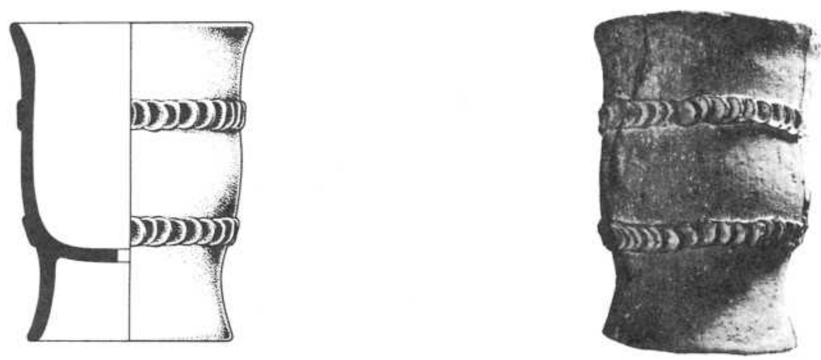
a. Monochrome, unslipped censer. Two finger-impressed circular fillets. Central circular vent in base. Traces of post-firing lime coat on exterior. Burned after breakage. Paste: medium texture, surface light pink. Color: Light Brown, 7.5YR-6/4. Provenience: Burial 5. Field No. 4C-4. 1/4 scale.

b. Unslipped censer with post-firing thin white lime coat on exterior. Two finger-pinched fillets. Very rough surface. Burnt copal adhering to burnt and blackened interior. Base and body also burned after breakage. Paste: medium texture. Color: Light Gray to Pink, 5YR-6/1. Provenience: Burial 5. Field No. 4C-5. 1/4 scale.

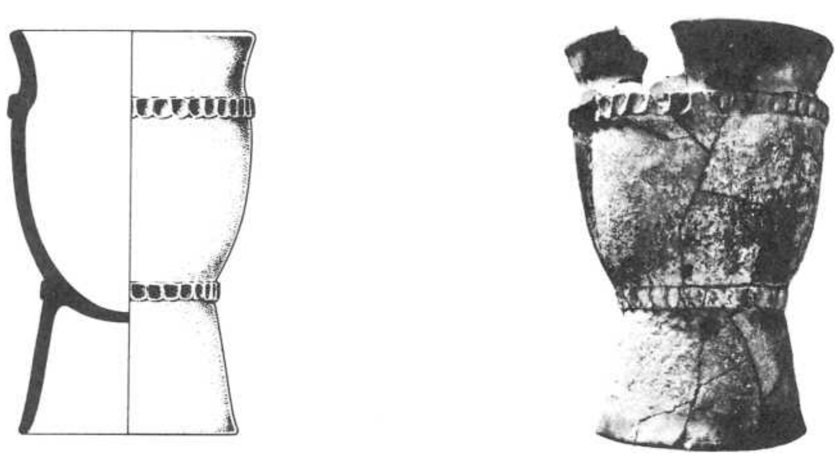
c. Incomplete, unslipped censer, probably pedestal base. One, of probably two fingernail-impressed encircling fillets with appliqued buttons between. Interior and exterior above top fillet roughly smoothed; below, exterior shows flat tool shaping, leaving rough surface. Paste: medium texture, light gray. Provenience: Burial 5. Field No. 4C-19. 1/4 scale.

Not illustrated: 13 unslipped censer fragments including two rims. Same types as above, with finger-impressed fillets, appliqued buttons, burnt copal, etc. Provenience: Burial 5. Field Nos. 4C-8 a, b, c.

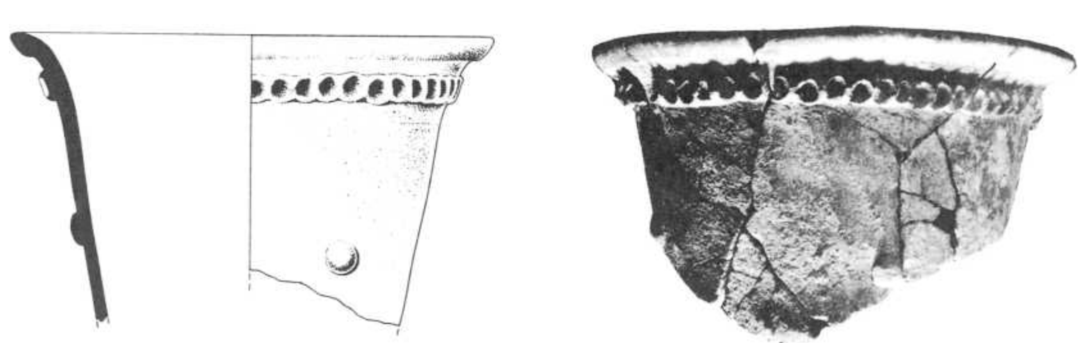
Fig. 42



a



b



c

FIGURE 43

a. Unslipped jar. Interior and upper exterior smoothed to 1 cm. on shoulder; below, shoulder has rasped surface. Color: Light Gray, 10YR-6/2. Provenience: Burial 5. Field No. 4C-16. 1/4 scale.

b. Similar to Fig. 43a. Fine line scratchings on shoulder below neck. Paste: coarse texture, gray. Color: Gray to Dark Gray. 10YR-5/1, 4/1. Provenience: Burial 5. Field No. 4C-17b. 1/4 scale.

c. Sherd of vessel with annular base. Eroded and severely burned. Paste: fine texture. Provenience: Burial 5. Field No. 4C-17b. 1/4 scale.

d. "X" Fine Orange (Yalton Black on-orange) sherd from body of vessel, probably cylinder. Slip polished, orange. Decoration: black, free-hand, single brush lines. Paste: very fine, uniform orange: specular inclusions in paste. Color: Yellow red, 2.5YR-5/6. Provenience: surface debris overlying the lower steps of the Temple I pyramid stairway and below the zone of charcoal and burnt *ramon* seeds (see p.119). 4B-Lot 2. 1/4 scale.

e. Fragment of a large effigy vessel. Traces of polished orange slip on interior wall. Appliqued mask on exterior at beginning of base. Paste: fine texture, light gray to pink. Color: slip, Yellow Red, 5YR-5/6. Provenience: Burial 5. Field No. 4C-6. 1/4 scale.

f. Projectile, flint, bifacially flaked. Base broken off just below side notches forming rudimentary stem. Lenticular cross-section; greatest thickness, 0.7 cm. Provenience: Temple II (Str. 5D-2), in surface debris outside doorway (see Appendix). Field No. 13B-1. 1/4 scale.

Fig. 43

a

b

c

d

e

f

TIKAL REPORT NO. 8

MISCELLANEOUS INVESTIGATIONS:

EXCAVATION NEAR FRAGMENT 1 OF STELA 17, WITH OBSERVATIONS ON STELA P34 AND MISCELLANEOUS STONE 25

Linton Satterthwaite

EXCAVATION OF STELA 25: FRAGMENT 1

Vivian L. Broman

EXCAVATION OF STELA 27

William A. Haviland

EXCAVATION OF STELA 28: FRAGMENT 1

Vivian L. Broman

CONTENTS

EXCAVATION NEAR FRAGMENT 1 OF STELA 17, WITH OBSERVATIONS ON STELA P34 AND MISCELLANEOUS STONE 25 153

STELA 17 153

STELA P34 157

MISCELLANEOUS STONE 25 158

SEQUENTIAL DATA OF FRAGMENT 1 OF STELA 17 158

CONCLUSIONS 160

EXCAVATION OF STELA 25: FRAGMENT 1 161

EXCAVATION OF STELA 27 163

EXCAVATION OF STELA 28: FRAGMENT 1 166

REFERENCES 168

FIGURES 169

Fig. 44 Sketch-plan, area at base of "North Ravine."

Fig. 45 Cross-sections of Fragment 1 of Stela 17, unidentified stela fragments, and Miscellaneous Stone 25.

Fig. 46 Stela 27, Section.

Fig. 47 Stela 27, as discovered.

Fig. 48 Stela 28, Fragment 1, cleared.

EXCAVATION NEAR FRAGMENT 1 OF STELA 17,

WITH OBSERVATIONS ON STELA P34 AND MISCELLANEOUS STONE 25

STELA 17

Illustrations. Maler, 1911, Pl. 27; Morley 1937/38, V, Pt. 1, Pl. 68c, d, e; Figs. 44–45a of this report.

Location. Site map, square 5E (Tikal Report No. 11), northwest corner, a few meters north of base of a steep slope leading down from the East Plaza to an area of outcroppings of bedrock, called by Morley a "lower terrace on the southern slope of the north ravine." The known large upper fragment of Stela 17 was found a little to the west of the base of a pronounced bulge in the contour lines depicting this slope, evidently the ruin of a stairway leading down from a gap between the parapet-like Strs. 5E-29 and 5E-30 at the edge of the plaza. The stela fragment is shown on the map a bit east of a pronounced northward bulge in the two lowest contour lines. In our Fig. 44, parts of the stairway bulge and of the low projection of higher ground farther west are represented schematically in broken lines. These do not represent careful topographic work, and the Magnetic North indication is also only approximate.

We show the Stela 17 fragment as seen in 1957, presumably as left by Morley. Later we call this "Position 3," allowing for small movements since its discovery by Maler at a reconstructed "Position 1," At the Position 3 of the figure the long axis ran roughly E–W rather than N–S, as seems to be inadvertently suggested on the map. A Brunton compass bearing on this axis was recorded as 297 degrees. Like Stela P34, to the north, Stela 17 was near the base of the gently rising slope to the west. In the figure we show it as actually on the slope, but could have placed the base of the slope farther west without becoming unrealistic. The stone lay on its left side—that to the left of an observer of the front when the stone was erect. The top was to the west. Farther west, the higher portion of the slope was seen to consist of bedrock, and there is no evidence of artificial terracing or other construction. Much lower outcroppings of bedrock occur before the stairway bulge, as indicated in the figure. These help to define a long, narrow, flat surface dropping in level northward and eastward, reaching the top of a minature "cliff" about nine meters north of the two fragments of Stela P34, beyond the limits of the figure. This flat area is not a terrace in the usual architectural sense, with masonry retaining walls rising to its top, but rather it would appear to be possible that the Maya took advantage of natural outcroppings and artificially improved a natural terrace for ceremonial use. However, the chief reason for suspecting this is the presence of the stela fragments and MS-25.

This is not an area where one would have expected stelae to be originally erected, and it is important to note that there is no sign of an altar with either stela. Since the above was

written, Vivian L. Broman excavated to the east of the stairway bulge and reports as follows:

> "During the 1960 field season a test trench was put in along the east side of the stairway leading from the East Plaza down where Stela 17 is located. This area below the East Plaza has been cleared sufficiently so that it can be assessed as a quarry rather than as any formal court. The situation revealed by the test trench (Operation 22 O) confirms this. The east side of the stairway was cut out of the rock and further quarrying took place, after which a certain amount of fill was put in to prepare the stairway area as an access to the East and Main Plazas. Sherds from this fill indicate that this occurred in Late Classic times (Tepeu 2/3–affiliated).
>
> "Subsequent to this preparation, dumping took place along the east side of the stairway, deposits accumulating at the bottom. Again the material is all Late Classic. It would seem from the gap between the parapet wall and the stairway on the east side that provision was made for dumping.
>
> "From this additional evidence we infer that the area in which Stela 17 and Stela P34 were found was not a formal court but rather a quarry and backstairs dump, created and used in the Late Classic Period. It is improbable that Stela 17 was ever erected here. It is certainly not oriented with relation to the stairway or to anything else, nor is Stela P34."

The writer proceeds on the assumption that Broman's assessment of the situation is in the main correct. The sizable stairway, while seeming to lead nowhere as ceremonial architecture, very likely was built for traffic to and from quarries. This alone would call for the gap between the parapets, and the gap would tend to direct dumping through it which need not have commenced at once. But, if stela material was dumped here, this does not exclude the possibility of resetting of fragments or even whole stelae at some later time, say in the Post-Classic when architecture was falling to ruin and the forest was taking over. We do not yet know that only ancient ceremonial precincts would seem suitable locations for "abnormal" ceremonial resettings, under such conditions. It seems safest to allow for the possibility and examine all available evidence.

Description. Stela 17 is known only by the large upper portion labeled Fragment 1. The fragment does not present a complete cross-section, and the front face may be reconstructed as about 0.70 m. in width (Fig. 45 a). The material is compact limestone with a certain amount of vesicularity, evidenced by surface pitting, and lacks obvious bedding planes. The maximum dimensions of the fragment are: Height, 1.35 m.; Width, 0.65 m.; Thickness, 0.60 m.

The front was carved with a profile human figure, and sides as well as back were devoted to inscriptions. On the back a text opens with an IS and Lunar Series at 9.6.3.9.15. On the left side the opening is with another IS, read by Morley as also 9.6.3.9.15 or possibly forty days earlier, at 9.6.3.7.15 (Morley 1937/38, I, pp. 332–336). In Tikal Report No. 4, we have assumed that the Dedicatory Date may have been as late as 9.7.0.0.0, while Morley chose 9.6.13.0.0 (??). Either alternative makes Stela 17 the latest epigraphically dated stela of the "Early Tikal Monument Period." It seems possible that the DD was given by a third IS, now lost from the right side. Illustrations of all carved surfaces, supplementing published ones, are in preparation for publication in a later Tikal Report, together with further discussion of the texts and the stela as a whole.

The stela was apparently first broken into two portions only; the line of fracture began a little below the lowest glyphs on the left side, but rose toward the right so that the lowest two rows on the right side are missing from Fragment 1, and are partly missing on the back. Alternatively, smaller fragments may have been subsequently broken from the upper portion to produce the present bottom of our Fragment 1. Above this level there has been major loss by detachment of sizable fragments from the right side of the front face and an adjacent portion of the right side. It is the loss of these fragments from what may have originally been a more complete Fragment 1 which may have deprived us of a third IS. This loss extends from bottom to top of the fragment, and includes much of the glyph area on the right side (Morley's Pl. 68c, Fig. 45a). For convenience we label these collectively "Missing Fragment Group 1x," to remind us that they may have been detached from Fragment 1, perhaps after its breakage from the butt, and perhaps at some other place.

The fractured faces are sharp and more or less conchoidal, as is usual with this type of limestone.

In shape, the stela was intended to be a nearly square shaft with rounding at the top. In general the carved surfaces are fairly flat, but there is a marked exception to this where the left side meets the back, above the level of the fifth row of glyph blocks. Here both surfaces curve inward, somewhat irregularly. Evidently the sculptor made do with a less than perfect blank. On the left side, at and below the level of the fifth row, there is a large area where the stone has been worn down, seemingly by human action rather than weathering. This wear is less complete in the first glyph column of this face, but even there, toward the bottom, is considerable. Elsewhere all vestiges of many glyph blocks are lost. Abrasion of this sort does not appear on the back nor on surviving portions of the surface of the front or right side.

Disturbance. In 1958 we saw no evidence of disturbance of the ground other than such as would be expected during photographic operations by Maler and, later, by Morley. Fig. 44a shows Fragment 1 where we found it and where, presumably, Morley left it. This cannot be precisely where Maler found it, and unfortunately Maler gives no positional details. However, by considering various factors it is possible to infer the positions with some assurance.

Although Maler does not say so specifically, we may agree with Morley that Maler found the fragment lying on the ground. Had it been erect he would have dug down a bit around its base, expecting to find buried and better preserved portions of carving. Had this revealed the re-erection of a top fragment he surely would have noted this fact, since later in the same year he found such situations at Yaxha and shows an interest in them in his report (1908, pp. 63–66). He estimates the length of a buried butt which he surely did not see, though he searched for an altár. Evidently he did no digging and supposed the butt was nearby, but hidden below the surface.

In describing the fragment he labels the faces by cardinal points, with the front as the "north side." How did he arrive at these designations, which are meaningful only for an erect stela? He must have reasoned that the known fragment had been broken off from an invisible but *in situ* butt, and reached a position which indicated that the front was to the north before the fall. We have such a position if the long axis was roughly E–W, top to west, right side down, and front to north. Since there is no reason to suppose the general orientation of this long axis was later changed appreciably by Morley, this is the highly probable position when Maler arrived on the scene, and we call it Position 1." Doubtless Maler reasoned that a falling tree struck the left side, knocking Fragment 1 to the right (west) so that it landed on its right side.

Maler's Pl. 27, a view of the back, was made without artificial light. The lighting shows that the right side was down, as in Position 1, and Maler may have moved the fragment very little, if at all. On the other hand, Morley's views of three faces, also by daylight, show that he probably started with Position 1, but, thereafter gave the stone two successive quarter-turns on its long axis. Three positions are necessary to account for the published record:

Stela 17 Fragment Lying on the Ground, Top to West

Position 1:	Front to north	Morley Pl. 68 c; Maler's "north side"
	Left side up	Maler drew glyphs; his "east side"
	Back to south	Maler's Pl. 27; his "south side"
	Right side down	
Position 2:	Left side to north	Morley Pl. 68 d
	Right side to south	Maler's "west side," reported "practically destroyed"
Position 3:	Back to north	Morley Pl. 68 e (reverse lighting compared to Maler's view at Position 1)

In rolling from Position 1 to 2, and from Position 2 to 3, the stone would tend to move in a straight line, with minor skewing of the long axis, if any. The rolling was presumably northward, down rather than up the slight slope. In amount, the total movement would theoretically equal the combined widths of the front and the left side; but because the front is partly missing, 1.25 m. seems a fair estimate. We conclude that Maler found Fragment 1 at Position 1, and that this was about 1.25 m. southwest of the final Position 3 shown in Fig. 44, with a similar orientation of the long axis, but with the right side down.

On completing our excavation we raised the fragment to vertical position, on a prepared dry-laid foundation in our trench, at a' in the figure. Its present precise position and orientation are meaningless.

Offering. Our excavation near this fragment produced no cache material.

Excavation. A minor excavation (as Operation 14A) was made in two stages, in addition to a rather thorough cutting of vegetation in the "terrace" area in 1958. First, the surface of the area enclosed by the broken-line oval of Fig. 44 was scraped with handpicks and trowels in a search for fragments of even tiny size which might have come from Fragment 1 of Stela 17. We reasoned that if the fragments of "Missing Fragment Group 1x" had been detached on the spot through natural causes, sculptured surface fragments and perhaps interior fragments should have survived at the surface. The result was entirely negative, but our assumption that fragments would not have weathered away was confirmed by finding two probable stela fragments which did not qualify as from "Group 1x."

The first of these is shown in cross-section in Fig. 45b. About 30 cm. of a flat face adjoin about 20 cm. of a bulging one, doubtless part of the side of a stela. There was no carving, and the material is the soft stratified type used for "Late Period Monuments." The other fragment is shown in Fig. 45c. Though the material is similar to that of Stela 17, if from that stela it is not from "Group 1x," since about 12 cm. of a flat face and about 20 cm. of the adjacent bulging one are both plain. Either may have been moved about by our predecessors, but if so, presumably they were found on the surface.

The second excavation stage consisted of cutting a trench to bedrock within the searched area, as indicated by dash-dot lines in Fig. 44. This confirmed our belief that our surface search was only a little above the ancient surface. The trench was laid out on the theory that it would encounter the missing butt, if Fragment 1 had been broken off from it at this location. We reasoned also that the fragment only might have been re-erected here, and simply have been knocked over, in which case the trench might encounter a cache, instead of the butt. Neither cache nor butt existed in the trenched area. Thus positive evidence of resetting here is lacking.

In this trench, small broken stone began to appear about 5 cm. below the surface, becoming more plentiful toward the bottom. Sherds were quite numerous. There was no visible stratigraphy. In the area opposite the stela fragment, marked a in the figure, those from the first 20 cm. were kept separate from those below. Bedrock is relatively smooth and slopes slightly downward toward the north, as does the surface, and varies between 25 and 40 cm. below the surface. The writer would not attempt to decide whether this cut was through prepared floor material or not. There was no sign of lime plaster, but this would not have survived.

The sherds (in 14A-Lots 1, 2, 3, 4) have not been studied, but an easily recognized Late Classic tripod bowl form with flat bottom was sketched on the spot.

STELA P34

Illustration. Fig. 44 of this report.

Location. Stela in two fragments, both found lying on the surface of the "west slope," as shown in Fig. 44, north of the Stela 17 fragment at the position found by us (Position 3). Point *b* on Fragment 2 is about 0.40 m. lower than Point *b* on Fragment 1, but both fragments are definitely on the slope. There are no missing large fragments. The stela was discovered by Edwin M. Shook in 1957.

Description. Coe supplies the following data. Material is the hard compact, non-laminated variety of "limestone" characteristic of the "Early Tikal Monument Period" (full data on Tikal monument stone types is contained in Tikal Report No. 14, in preparation by Coe). Maximum dimensions: Height, 1.86 m.; Width, 0.52 m.; Thickness, 0.39 m. The total length of the stela appears to be present in the two fragments. The stela is rectangular in cross-section with very gently convex surfaces. Opposing surfaces are essentially parallel. Both ends are somewhat tapered and have an irregular appearance making it perhaps uncertain as to which is the butt and which is the monument top. George F. Guillemin believes Fragment 2 (the smaller) is the butt; it was turned by Satterthwaite. A large flake has been detached from one face—side corner of Fragment 1; it was not located. The stela, as noted, comprises two large fragments, broken transverse to the monument, at a point 1.02 m. of the total height. There is no reasonable doubt that this is a plain stela, though one side of the larger fragment has not been seen.

Disturbance. Since the two fragments are close together, there is a probability that the break occurred here. However, there is evidence of movement since the break occurred; i. e., the fractured ends of both fragments are to the northwest.

Offering. No search for an associated cache was made.

Excavation data. No excavation was done at this locus.

Discussion. This stela has been considered only insofar as it affects the interpretation of Stela 17. Since excavation was not done here, the possibility of a cached offering cannot be ruled out; an offering would strongly suggest that the stela once stood here. However, at the moment, there is no positive evidence for either original or secondary erection of the complete stela at this spot, though neither possibility is positively precluded by the data at hand.

MISCELLANEOUS STONE 25

This stone is shown in outline and cross-section in Fig. 45 d and was thought by the writer to be a stela butt. Shook, who discovered it, doubts this (personal conversation). It was found next a line of three flat stones which must have been purposely placed. It had apparently slumped back from an on-edge position, the latter being suggested in broken line in our Fig. 44.

If not a stela butt it is similar to one. Maximum dimensions of the fragment are: Height, about 0.40 m.; Width, 0.54 m.; Present Thickness about 0.30 m. MS–25 is not a detached fragment of local bedrock and its association with the line of flat stones cannot be reasonably attributed to mere chance, whether or not we are justified in restoring it to a vertical position. The association suggests crude ceremonialism involving a stela butt fragment, or a stone of similar form.

SEQUENTIAL DATA OF FRAGMENT 1 OF STELA 17

Time-span 3 (earliest): Surviving dates suggest original erection of the complete Stela 17 at 9.7.0.0.0, or within the katun then ending. This time-span includes a presumed period of normal use thereafter, presumably with an altar and in relation to architecture, but this was elsewhere than on the "terrace" where found by Maler. The span begins within Proskouriakoff's "hiatus" period for carved monuments generally, and begins "Gap 2" in our sequence of local and legibly dated monuments (see Tikal Report No. 4, pp. 120–121).

Time-span 2: This begins with major breakage of the stela, whether accidental, from natural causes, or intentional, or combinations of these. All breakage need not have been at the same time or place, but might have been. The span lasts till Fragment 1 moved to the "terrace" some unknown distance from the place or places of breakage. The duration of the span may have been long or very short, so far as compelling evidence is concerned. The stela broke into at least two large fragments; smaller but sizable fragments labeled "Fragment Group 1x" were detached before this major break, simultaneously with it, or after it, in which latter case Fragment 1 as found is an upper portion which lost much of one side (the right side). It is then comparable to the known upper portion of Stela 12, which was reset in the Main Plaza after loss of sizable fragments at some other location.

Time-span 1: This begins when Fragment 1 first reached the "terrace"; and covers subsequent movements and uses, if any. In judging whether the latter existed, alternative hypotheses may be considered.

1. Original erection of the complete stela was on the north slope, its top near the edge, or on the parapet extending eastward from Str. 40; on breaking, Fragment 1 fell down the slope to Maler's position.

Such an original location for the stela, presumably with an altar, is a mere, highly improbable, logical possibility.

2. Fragment 1 was being dragged to some other location for re-use, possibly for resetting, but was abandoned on the "terrace."

This is a situation which may perhaps have occurred with Stela 25. However, here the terrain is so rough that an east–west movement across it, or *vice versa*, would be by a highly impracticable route. If it was desired to move the stone northward from the East Plaza, passing through the gap between parapets, the route would be down-grade and comparatively easy. This hypothesis is perhaps tenable. Conceivably the fragment was purposely rolled down the westerly side of the stairway bulge and, striking some obstruction, landed well to the west of the base of the bulge. But this seems unlikely, and the same explanation cannot be used to explain the northerly as well as westerly distance of the Stela P34 fragments from the base of the bulge. This hypothesis also seems to be a mere logical possibility.

3. Fragment 1 was dumped from the gap between the parapets as useless, and landed at Maler's position on the "terrace."

The same objections apply as under hypothesis 2. But dumping of the Stela 17 fragment, Stela P34 and MS–25 to the "terrace," followed at some time by further movements to specific spots at which they were found is plausible. Motives for subsequent movements would be required – presumably more than a mere desire to tidy up a dump and quarry area.

4. The fragment was brought to the specific spot at which it was found because this had been selected as the place for a re-erection; if previously dumped in the vicinity, the final movement may have been only a few meters; it fell after re-erection.

In favor of this hypothesis is the evidence of MS–25 and the associated line of stones that the "terrace" despite its crudity, was eventually a ceremonial precinct. This is confirmed by presence of both fragments of Stela P34, suggesting that a small plain stela once stood here, complete, or broke where found while being moved. Placement by root action so that both fractured surfaces lay to the northwest is perhaps possible, but surely unusual. This disturbance of the two fragments of this small plain stela after breakage suggests fragment re-erection and subsequent fall, as postulated for the Stela 17 fragment. Although a search in the area failed to locate a cache, its absence is scarcely conclusive evidence against the stela having been actually re-erected and subsequently knocked over to the west by a falling tree. This hypothesis was suggested in Tikal Report No. 3, pp. 77, 80, 81.

5. The fragment may have been re-used in masonry and have fallen to the final position when that disintegrated.

This hypothesis is somewhat dubious because of lack of evidence for such re-use of large monument fragments, and more so because it cannot be extended to include Stela P34 which lies too far to the north. Considering Stela 17 in isolation, re-use in the stairway might explain the puzzling abrasion on the left side as due to wear by foot-traffic on the

stairway. If to and from a quarry, this would be considerable. It is unlikely that such extreme smoothing as occurred was due to dragging the stone a long distance, which would be on wooden rollers or wooden "rails." The writer has had comparable stones moved on the latter and suggests that the operation could scarcely have produced the observed effect. There is a similar smoothed area on Stela 25, a lighter fragment. Abrasion as a conscious mutilation of an inscription seems to the writer to be doubtful here as there. In both instances, the smoothing did not extend to the all-important IS at the top of the surface involved, and it does not appear at all on the inscribed back of Stela 17.

The presence of a small fragment from another stela could also be explained as due to a fall from a re-used position in masonry. If the Stela 17 fragment was in fact worn down while a part of the stairway and eventually fell to the "terrace," this would not preclude its later re-erection as suggested by the other evidence. Further, it could have been dumped in the general area after use as building material elsewhere. The smoothing, whether due to such use or conscious mutilation, does not rule out the re-erection or the dumping and later re-erection hypotheses.

CONCLUSIONS

The combination of dumping followed by resetting of stela fragments, including that of Stela 17, appears to best account for all the facts, though future investigations in similar areas may add new evidence to be considered. Since Broman has dated the stairway base-surface itself, as well as later dumping there, as Tepeu 2/3, resetting of monument fragments, though not absolutely proved, may well have occurred here in the Post-Classic, as seemed to be the case at Xutilha (Tikal Report No. 9). If so, the top portion of Stela 17 had a long and varied history, during which it probably completely lost its esoteric value, and then regained it in some measure.

The hints that large fragments of discarded stelae may have been incorporated at the surface of Classic Period architecture are of theoretical significance. For example, Stela 12 could have been broken up in the Great Plaza and all fragments incorporated in fill and at the surface of new nearby construction, rather than dumped elsewhere. The known fragment could then have been visible in the area in Post-Classic times, ready for resetting, in this case near still standing or naturally fallen stelae and among ruined structures. Finding fragments of comparable size actually in place in masonry would go far to confirm this idea.

L. S.

EXCAVATION OF STELA 25: FRAGMENT 1

Illustrations. Tikal Report No. 4, Figs. 22 and 23, pp. 148, 149.

Location. The incomplete Stela 25 (portion known as Fragment 1) was discovered in February, 1957 by James Hazard and Antonio Ortiz while they were laying out an access road to Aguada Naranjo. This fragment lies 290 m. southeast of Stela 23 (exact map location: 7F S257 E477: Tikal Report No. 11, Temple of the Inscriptions Sheet). The monument, top fragment only, lay face down in a north–south orientation with the back exposed. A plaza group of three structures, large mound to the north and small platforms to the west and south, lay to the west, while a smaller platform lay to the southwest, all on fairly even ground sloping gradually off to the southeast.

Description. The stone is hard non-laminated compact limestone, a type evidently used in all "early" Tikal monuments (see Tikal Report No. 14, in preparation by Coe). The fragment has been adequately described by Shook and Satterthwaite, Tikal Reports 1 and 3, but a further note may be added concerning the abrasion of the lower part of the remaining glyphic text. The abraded surface is remarkably even. Abrasion extends from the broken edge across the glyph text to the far side, without touching the upper four rows of glyphs which include all, or the most essential glyphs of an Initial Series date, and where one would more reasonably expect mutilation to have started.

This grinding could hardly have been due to wear caused by dragging nor, though the surface was long exposed, due to weathering. If this fragment had served as a milling stone in later times, one would expect the grinding action to have produced a somewhat concave surface.

Contrary to Satterthwaite (Tikal Report No. 3, p. 74) we conjecture that this abrading was most probably done in conjunction with other mutilation when the monument was removed from its original setting and broken, and the right side trimmed. Abrasion does not occur on all of the mutilated monuments and monument fragments, but that several monuments were treated in this way seems to indicate intent to erase or destroy in the same way as the mutilation of the faces of the carved figures. This abrasion of the carved surface has been seen to occur on Stelae 17 and 28 (this report) and on Altars 3 and 12 (Tikal Report No. 12, in preparation by Coe).

Disturbance. As found, the stela fragment had the upper right corner and a few smaller pieces from the right side broken away but lying in place. This breakage may be considered to have been from natural causes. As no other portions from the trimmed right side or base were encountered, indications are that the fragment was abandoned as such.

Offering. No cache or cache pit was discovered.

Excavation data. Pertinent data given in Tikal Reports No. 1, p. 17; No. 3, p. 82.

Discussion. Although the stela fragment was found lying on or very close to a floor, there was no indication that it had ever been erected there. Nor was the fragment oriented in any way with relation to the nearby structures. The small platform to the southwest and closest to the stela was itself not oriented to the plaza group mentioned above. It seems to have been of rubble construction and quite different from the other structures, perhaps a much later addition in the area.

Sequential data. As regards activity centered around Fragment 1 of Stela 25 we can describe only two time-spans.

Time-span 2: As an Early Classic monument with a Dedicatory Date of 9.4.3.0.0., we infer erection with relationship to a structure at that time.

Time-span 1: In this period we account for the removal of the stela from its original position, its mutilation and fracture, and, if not immediately, the eventual moving of at least one fragment to its position as discovered in 1957. The length of this time-span is unknown. We assume the fragment was merely abandoned although, as Satterthwaite notes, the trimming may indicate an intention to reset the fragment, which, however, was apparently not done, at least not where the fragment was found. The reset fragment of Stela 23 is located nearby (Tikal Report No. 3).

V. L. B.

EXCAVATION OF STELA 27

Illustrations. Figs. 46 and 47.

Location. Stela 27 was discovered in May, 1958 by Francisco Avila, one of the project workmen, in Square 2F S389 E469 (Tikal Report No. 11, Encanto Sheet). This stela, the only one at Tikal known to face north, was found leaning forward at a 45 degree angle from the vertical. No further study was undertaken prior to the 1959 season.

According to Hans M. Gregersen, project surveyor, the only surface features worth noting in the immediate vicinity are a mound group located on a ridge 120 m. due west, three chultuns several meters apart, located 85 m. due east, and a steep sided, regular shaped hill about 90 m. long, 60 m. wide, and 5 to 6 m. high, situated about 70 m. north–northeast of the stela. Within a radius of 160 m. of the stela are located 17 chultuns—a greater concentration than has been found in any other one part of Tikal. The nearest chultun to the stela lies 40 m. west–southwest. All these features appear on the site map.

An arbitrary datum stake (Station No. 1) was placed northeast of the stela, and from this a line running magnetic west by Brunton compass was established, and another permanent stake (Station No. 2) set 5 m. west of the first stake.

Description. Stela 27 is of compact, vesicular, non-laminated limestone which has a tendency to break with a conchoidal fracture. The stone is extensively pitted. In cross section, the monument is approximately rectangular. All corners are rounded slightly, and the sides, front, and back all show some convexity, the front both horizontally and vertically. The top is rounded from side to side, slightly so from front to back. Carving covers both sides and the front; the back is plain. The front carving is of a figure facing the observer's right. The stela clearly belongs to the same class comprising Stelae 3, 6, 7, 8, 9, 13, and 15. The face of the figure appears to have been deliberately mutilated anciently. Glyphs separated by uncarved areas are arranged three pairs to a side. At the time of discovery, the only date on the monument, an Initial Series, 9.3.0.0.0 , was read by Richard E. Adams. Illustration and discussion of the text and carving of the stela are planned for a future publication (by Satterthwaite).

In front, the plain butt of Stela 27 is asymmetrically rounded from side to side, with all edges rounded and smoothed. However, the bottom edge in back is sharp and unworked (Fig. 46 f). The east edge also is sharp, with a slight concave appearance. Indications are that a large, flake-like slab has been detached from the bottom of the base. Maximum dimensions: Height, 2.33 m. (HA, 1.72 m.); Width, 0.84 m; Thickness, 0.55 m. The base of carving on the sides is 0.40 m. higher than that of the front figure.

Disturbance. In terms of its present location, the only disturbances are probably from

natural causes. As discovered, the stela was leaning forward at an angle of 45 degrees from vertical, and some fragments had been knocked off the southwestern edge. The latter were recovered in excavation. Apparently, natural agencies only are involved. Mutilation of the face of the principal figure appears to have been deliberate, but could have occurred prior to the raising of the stela at its present location.

Offering. Cache 51 was found in a cut in bedrock beneath the northeast corner of the stela (Fig. 46 e). This hole, ca. 0.31 m. in diameter, contained fish vertebrae, nine eccentric flints, and seven eccentric obsidians. A drilled obsidian core, theoretically classifiable as an "eccentric," and an obsidian projectile point with a centrally and side-notched base were also included. This material is fully discussed in Tikal Report No. 13 (in preparation by Coe).

Excavation data. Excavation proceeded as Operation 16B. A line running south (magnetic) by Brunton compass from "Station No. 1" 5 m. in length was established, and excavation was from east to west along the northern 3.25 m. of this line. The lower limit of excavation was bedrock, which averaged 0.80 m. below surface (Fig. 46). A thick layer of humus (Fig. 46 a) in places 0.34 m. deep, overlay grey earth (Fig. 46 b) in the area. The humus at the back of the stela (Fig. 46d) extended down to bedrock. This indicates the original hole for the stela, the slump of the monument having permitted humus to accumulate here. This humus lay on top of the grey earth in a relatively level line in back of the stela, but in front the top of this grey material rose and fell very unevenly. This second stratum (Fig. 46 b) possibly represents a layer of wash; in this connection it should be noted that the ground surface rises gradually for some distance immediately west of the vicinity of the stela. Sherds occurred in both the humus and the grey wash. These were segregated during excavation according to level, although this is quite possibly a false distinction. Those from the humus (Fig. 46 a) constitute 16B–Lot 1, those from the grey wash (Fig. 46 b) 16B–Lot 2.

The two sherd lots were appraised by Vivian L. Broman. She reports that 16B–Lot 1 material, largely weathered, contained some Late Classic pieces (using a form basis) with some Early Classic admixture. Lot 2, smaller than the preceding, yielded no diagnostic Late Classic forms. The lot appears to comprise a mixture of Early Classic and Pre-Classic material.

Beneath the grey earth was a layer of closely packed stones and pebbles (Fig. 46 c), ca. 0.26 m. thick, lying directly on bedrock. Its surface was relatively level, though no evidence was found of any lime-mortar floor having been associated with this feature. Only two small sherds (discarded) were found below the surface of this layer, which might indicate that its surface represents an ancient occupation layer.

The stela itself sat directly on bedrock, and immediately below its northeast corner the dedicatory cache (Cache 51) had been placed in a special pocket cut into bedrock (Fig. 46 e).

As to associations of the monument, we believe it to have been placed here at a time when the grey wash had been deposited, as the cut for the stela seems to intrude into this. That there was a space of up to 0.38 m. (at maximum) between the ground surface and the base of carving in such a situation (when stela is restored to vertical position) does not necessarily negate this conclusion if the stela had been moved from some other location for re-erection here in relatively late times. Other evidence bearing on this problem will be discussed below.

Discussion. Almost everything about this situation is unusual. In the first place, there are no structures of any sort in real proximity to the stela. Because of this apparent lack of any nearby structures, we have concluded that probably a real plaster floor never existed here. This, then, is an unusual situation, which suggests movement and re-erection of

an early stela (see Tikal Report No. 14, in preparation by Coe, for criteria of "normal" monument positioning). The lack of an associated altar may reinforce this latter conclusion, as possibly does the material from Cache 51.

Sequential data. The present situation of Stela 27 seems to derive from three distinct phases of activity. These will be treated here in terms of three hypothetical time-spans which apply to the stela itself.

Time-span 3 (the earliest): We have inferred that the stela was probably erected elsewhere at 9.3.0.0.0 presumably in Classic situation; related to a structure and with an axially placed carved altar in front.

Time-span 2: This span provides an unknown duration of time for removal of the stela from its original setting to its re-erection in its final situation. The face of the principal figure might have been mutilated at this time in connection with possible obsolescence (see Tikal Report No. 14, in preparation).

Time-span 1: Stela re-set at present location, conceivably with material from the original cache beneath the base. This material is of intermediate type (see Tikal Report No. 13, in preparation)except for the projectile point which is an unusual cache item. Possibly this was substituted for a missing eccentric. Date of re-erection is unknown; in context with other stela abnormalities, we assume it to be late (see Tikal Report No. 14, in preparation by Coe). The atypical element in the cache favors this, as we suspect that a utilitarian point would not be tolerated when caches of intermediate monument type were the rule. The sherd material from the seemingly critical 16B–Lot 2 (Fig. 46 b) allows us little more than the unremarkable fact that repositioning could have occurred no earlier than general Early Classic times.

W. A. H.

EXCAVATION OF STELA 28: FRAGMENT 1

Illustration. Fig. 48.

Location. The incomplete Stela 28 was discovered in October, 1958, by Antonio Ortiz, 5.5 m. north of Stela P36, and 80 m. northwest of Stela 29 (Tikal Report No. 11, Great Plaza Sheet: Square 5D S0 E36). From Str. 5D–8, the ground slopes down to the north some 30 m. where the stela lies. The monument was found lying face down with its long axis oriented northwest–southeast, with only the upper part (glyphic portion) barely exposed.

Description. Stela 28 is represented by a bottom fragment only (designated as "Fragment 1"). The stone is non-laminated, compact limestone, of "early" type (see Tikal Report No. 14, in preparation by Coe), tending to break with a conchoidal fracture. Small pits and cracks are apparent on some surfaces. The sides are parallel, and all surfaces are flat with good but rounded right angles at corners. The base, broken on the right side, gives every indication of symmetrical roundness, Carving, dimensions, and stone type place this stela in the same early group containing Stelae 1 and 2. Carving on the front appears to have been abraded and the top of the fragment, along the front, has been trimmed. Maximum dimensions: Height of fragment, 1.32 m. (HB, 0.30 m.); Width, 0.66 m.; Thickness, 0.39 m.

Stela 28 will be fully reported upon as a monument in a Tikal report in preparation by Satterthwaite covering material of the "Early Tikal Monument Period."

Disturbance. Fragment 1 was found broken diagonally in two large adjoining pieces, with some smaller fragments. Breakage and proximity of fragments were such as to indicate entirely natural causes. That original separation of the known portion of the stela from the as yet undiscovered top portion occurred anciently in some other part of Tikal is suggested by the lack of fragments about the stela that have not resulted from natural causes.

Offering. No cache or cache repository was discovered.

Excavation data. A trench 1.50 m. by 3.20 m., designated as Operation 10C, was laid out around the stela fragment. A layer of humus 0.20 m. thick overlay lighter soil below. All artifacts from this upper layer (10C–Lot 1) were segregated from those below (10C–Lot2). No trace of any floor was found in this second level. Associated pottery is "Late Classic" to "modern" in type; one wonders whether recent sherds may not have derived from milpa activity in the area.

At about 0.45 m. below the surface, a white level was encountered which conformed to the natural slope of the area. This level was interpreted as soft marly bedrock. The trench was cleared to this level, and a further probe made at the base of the stela. However, no trace of either a stela pit or an offering was found.

Discussion. The stela fragment was not within a formal court area. The only possible relation to construction would be to Str. 4D–33, a low mound to the north. The stela fragment was not centered in relation to this mound. If it had fallen from a reset standing position, it would have had to have faced the mound originally (cf. Stela 14, Tikal Report No. 3, pp. 79, 80). No signs of stela pit nor an associated offering were found here. Similarly we failed to find any trace of a plastered surface. The stela face is evenly and severely abraded; a large portion of the base is missing; the top of the front was transversely trimmed.

In short, we have no positive evidence that Stela 28: Fragment 1 was ever moved to this position for re-erection. The situation and condition of the monument are not unlike those of the Stela 25 fragment, also described in this report. As indicated on the site map (Tikal Report No. 11, Great Plaza Sheet), the Stela 28 fragment lay north of and is no great distance from Stela 29 (an upper fragment only) and Altar 13 (also very incomplete). Similarly no sure signs of erection as a fragment were found in the case of Stela 29 (an excavation report on Stela 29 and Altar 13 and other local features by E. M. Shook is scheduled). The total situation would seem pertinent to the subject of monument abnormality at Tikal (Tikal Report No. 3). In the case of Fragment 1 of Stela 28, two possibilities come to mind: (1), that the fragment was abandoned where found in the process of being transported for re-use or re-erection, or (2), that it was dumped where found following removal from its original situation and separation from the top portion of the whole stela. The significance of the trimming of the top of Fragment 1 and the heavy abrasion of its front is unknown.

Sequential data. We can infer three time-spans for Stela 28: Fragment 1.

Time-span 3 (the earliest): This includes formal erection and functioning of the fragment as part of a whole stela (see Tikal Report No. 14, in preparation by Coe, for Classic monument standards). Stylistically, Stela 28 is related to Stelae 1 and 2; the latter monuments present some problems as to placement in the sequence of carved monuments at Tikal, but it is evident that carving and erection of these and Stela 28 pertain to a relatively early phase of monument activity (Tikal Report No. 4, pp. 120, 121).

Time-span 2: This begins with the major breakage of the stela and lasts until Fragment 1 resulted and was moved to the vicinity where found.

Time-span 1: This covers further movements and use, if any. This time-span is allowed principally to cover the seemingly remote possibility that Fragment 1 was re-erected where found.

V. L. B.

REFERENCES

Maler, T.
1911 Explorations in the Department of Peten, Guatemala–Tikal. *Memoirs, Peabody Museum, Harvard University*, Vol. 5, No. 1. Cambridge.

Morley, S. G.
1937–1938
The Inscriptions of Peten. *Carnegie Institution of Washington, Publication* 437, 5 vols. Washington.

TIKAL REPORTS
Nos. 1, 3, 4, 11; also Nos. 12, 13, 14.

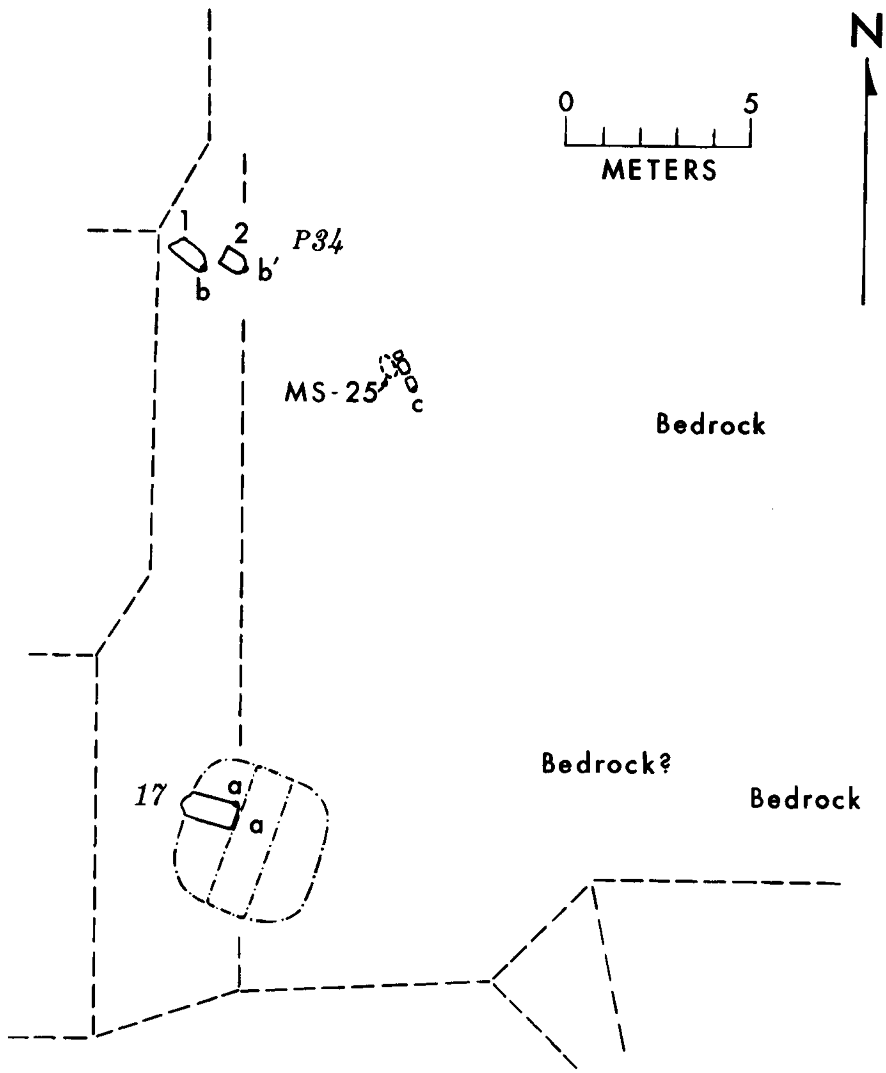


Fig. 44. Sketch-plan, area at base of "North Ravine." Broken-line oval encloses area of careful surface search and central trench to bedrock (dash-dot straight lines); other broken lines indicate gentle slope rising to west and steep slopes of ravine rising to south. a, b, b', near corresponding points on Fragment 1 of Stela 17 and Fragments 1 and 2 of Stela P34 as found. a' present erect position of Stela 17 fragment; c, near corresponding point at end of line of flat stones at surface, next Miscellaneous Stone 25 (supposed formerly erect position of latter indicated in broken line).

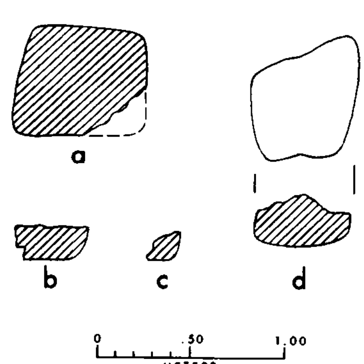


Fig. 45. a, cross-section through Fragment 1 of Stela 17, level of base of seventh row of glyphs on back; b, c, cross-sections of probable stela fragments not from Stela 17 fragment but found at surface near it; d, silhouette and cross-section of Miscellaneous Stone 25.

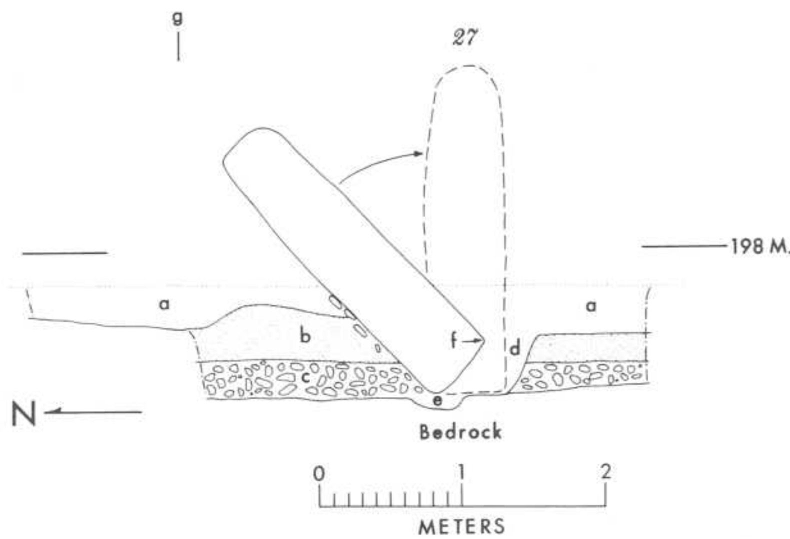


Fig. 46. Stela 27, section. East–west baseline noted in text here indicated by vertical line. a, humus (12B-Lot 1); b, grey earth (12B-Lot 2); c, packed stones and pebbles; d, humus within probable stela pit; e, pit containing Cache 51.

Fig. 47. Stela 27, as discovered, showing east or left side.

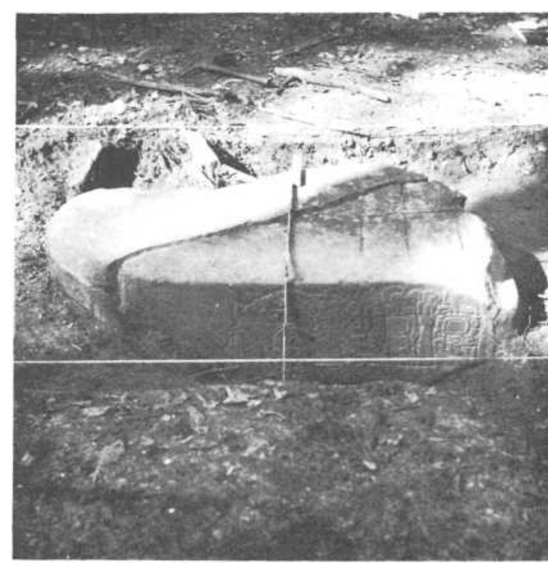


Fig. 48. Stela 28, Fragment 1, cleared. Left side and back visible.

TIKAL REPORT NO. 9

THE MOUNDS AND MONUMENTS AT XUTILHA, PETEN, GUATEMALA

Linton Satterthwaite

CONTENTS

	Page
INTRODUCTORY NOTE	175
Acknowledgments	175
THE SITE: GENERAL DESCRIPTION	175
Architecture	176
Masonry	176
Stairways	176
Structure 1	176
Structure 2	177
Summarizing Note	177
MONUMENTS CONSIDERED COLLECTIVELY	177
Grouping	177
Shapes	178
Classifications as Carved or Plain	178
Carved Stela Classification	179
Dimensions	179
Table 1—Dimensions of Twelve Xutilha Stelae, Ten Altars, and Three Groups of Fragments	180
Fragmentation	180
MONUMENTS: NORMAL AND ABNORMAL SITUATIONS: RESETTINGS	181
Stela 1/Altar 1	182
Stela 2/Altar 2	182
Stela 3/Altar 3	183
Stela 4/Altar 4	183
Stela 5	183
Stela 6/Altar 5	183
Stela 7	184
Stela 8/Altar 6	184
Stela 9/Altar 7	184
Stela 10/Altar 8 (with note on Stela 9)	185
Stela 11/Altar 9	186

Page

Stela 12 186

Altar 10 187

Summary of Evidence for Resettings 187

DESIGNS AND INSCRIPTIONS ON CARVED STELAE 189

Groupings by Height, Design Lay-out, and Body Posture 189

Style-dating in Proskouriakoff System 190

Inscriptions 191

Stela 6 191

Stela 4 192

Stela 9 192

Stela 10 192

Stela 2 193

Stone I, Stone Group 2 ("Stela X ?") 193

REFERENCES 194

FIGURES 195

Fig. 49 Map of Xutilha

Fig. 50 Monuments and Mounds of Structures 1 and 2

Figs. 51–52 Structure 1

Figs. 53–54 Structure 2

Fig. 55 Stelae and Altars

Fig. 56 Stela 2/Altar 2

Fig. 57 Stela 6

Fig. 58 Stela 9/Altar 7

Fig. 59 Stela 10/Altar 8

Fig. 60 Stela 2/Altar 2

Figs. 61–62 Stela 3/Altar 3

Figs. 63–64 Stela 4

Figs. 65–66 Stela 6

Figs. 67–69 Stela 10

Figs. 70–71 Stela 9

Fig. 72 Stone 1 and Stone Group 2

Fig. 73 Pottery Figurine Head

INTRODUCTORY NOTE

Xutilha is a "new" ruin reported to personnel of Exploración de Guatemala, a subsidiary of Signal Oil and Gas Company, and first investigated by Richard L. Hester and Spencer C. Morris, of the company, in 1957. It lies 9.3 m. west and slightly south of San Luis, in the archaeologically little-known southeast portion of the Peten. Though a small site, they found twelve stelae, at least seven of them carved, and a fairly complex system of stone-faced platform architecture. As we shall develop later on, these probably pertain to a Late Classic occupation, yet there is no visible sign of use of the masonry vaulted roof for buildings. Another factor of great interest is evidence for re-setting of stelae, complete or fragmentary, and a hint that this was after the forest took over. These latter data may be of use in attempting to explain what finally happened to many of the Tikal stelae.

The writer spent eleven days at Xutilha, March 16–26, 1958, devoting most of his time to the monuments, with minor excavations about them.

ACKNOWLEDGMENTS

The investigation was arranged by Edwin M. Shook, Field Director of the Tikal Project of the University Museum, University of Pennsylvania, and Mr. Lloyd C. Miller, in charge of the Signal Oil Company operations, under the Tikal Project contract which provides for non-exclusive studies at other Peten sites. We are very greatly indebted to Mr. Miller and the company, which not only reported the new site promptly, but defrayed all expenses including air travel to and from the capital, maintenance of the writer and six men, their wages, mule hire, and several hours of helicopter time, and lent all necessary camping and other equipment. At San Luis, company personnel were helpful in all possible ways. Thanks are due especially to Mr. Spencer C. Morris, who knew the site at first hand, supplied photographs and detailed information in advance, and determined the exact location of the site by helicopter and walking the trail. Fig. 49 is after a map drawn by him. Mr. James L. Reser saw to it that pleas from the bush for supplies and equipment were attended to without delay. Archaeologists could not ask for a more generous spirit of cooperation and assistance from an organization with more practical aims, than that of Signal Oil Company as represented by Mr. Miller and his staff.

THE SITE: GENERAL DESCRIPTION

For the sketchy description at present possible one may divide the site as known into three areas or groups. These occupy the top of a saddle-shaped hill, surrounded by higher hills which made it difficult to find from the air. What we shall call the Central Group is at a somewhat lower level than the Northeast and Southwest Groups, between which it lies. It includes a main plaza perhaps 50 m. wide and 150 m. long, the long axis running between the Northeast and Southwest Groups, with at least two mounds (Structures 1 and 2) at the southeast edge, and a court at lower level behind these. The monuments are ranged on this main plaza of the Central Group, before Structure 1 (Fig. 50).

A heliport has been established at the highest point of the Southwest Group. No monuments have been reported there or in the Northeast Group, but searching was superficial. On the central main plaza a grid of trails at 10-meter intervals facilitated rather thorough sur-

face examination by the writer without disclosing monuments other than those here reported on.

Rising ground and eventually terracing lead from the Main Plaza to the Northeast Group, where only one mound was reported, and there is no indication that this area was a ceremonial one. In contrast, the Southwest or Heliport Group is a complicated acropolis–like system of terracing and mounds defining small courts at various levels. Maximum heights for mounds here are of the order of 5.00 m. or so, but they may seem much higher as seen from a lower court level to the rear. Only one was noted which may have been square rather than oblong.

If a visitor arrives in this Southwest Group by helicopter, working his way down hill in the northeasterly direction will bring him to the main plaza of the Central Group, or the lower plaza next it and southeast of it. If arriving by trail from San Luis, one passes "Cueva de Agua," a prominent rock shelter, on the left and immediately begins to climb, passing the Southwest Group high above on the left, and emerging near the monuments of the main plaza of the Central Group.

Apparently the only permanent source of water is a spring very close to Cueva de Agua. One is in the midst of closely packed hills separated by narrow valleys devoid of nearby surface streams even during an unusually wet March.

ARCHITECTURE

MASONRY

Xutilha is a much more substantial site than those near Poptun, to the east (for which see Shook, 1950, pp. 3–6), but it seems to correspond with them in architectural technology. There is no surface sign of vaulted roofs, nor even of free-standing masonry walls of buildings. Retaining walls of terraces and platforms are of limestone slabs and blocks, with no fine stone-cutting. They are laid flat and where visible now they appear as if dry-laid.

The floor of the Central Group plaza was cut through at several points near stelae. Underlying about 10 cm. of sterile humus is a layer of medium-sized to small formless limestone fragments, usually about 25 cm. thick, resting on stiff black clay. One has the impression that clay without burned lime was the binding agent in floors, and perhaps it has washed out from between the stones of retaining walls. One hesitates to say there was no use of burned lime, as for plaster, but it did not appear at the only spot reached at the buried base of Structure 1.

STAIRWAYS

Two very interesting stairways were noted, one in the Heliport Group, the other (if memory serves) on the lower level of the Central Group. In each case a lowest flight of steps has treads much deeper than the height of the risers, and one must assume a steeper, now ruined, flight carrying one higher. There was some evidence that single slabs formed the risers of the deeper steps, and that these were cut to a slight batter, as on similar stairways at far distant sites.

STRUCTURE 1

This mound, behind the stelae and altars, was partly cleared of smaller vegetation. Fig. 50 gives a highly schematic representation of it, with indication of the little digging which was done here.

More is known at the bottom and top than at intermediate levels. Figs. 50 and 52 show

clearly that there were three platforms at the top, presumably for three buildings of perishable materials, and we label them Strs. 1a, 1b, and 1c, for reference. The excavation in Squares C7–D6–D7 suggests that this division into three subordinate units may begin as low as 0.80 m. above the plaza level. Compare the profile of Fig. 51 with the plan of Fig. 50, showing that the terracing behind carved fragments found at "Y" comes to an end, in line with the depression at the top separating Strs. 1a and 1b. In effect, though perhaps not completely in fact, three separate platforms may have been based on a common long platform about 0.80 m. high.

The carved fragments at "Locus Y" are those of "Stone Group 2" and may well belong with others of "Stone 1" found at "Locus X." One may guess that all were re-used as building material but there is no real proof. Note that Locus X is at the tip of a "peninsula" of debris jutting out over the plaza. A corresponding depression at the front top of the mound shows that this material comes from there. The situation seemed to preclude formation of this "peninsula" by mere uprooting of trees, and human action is therefore suspected. If there was a late robbing of the mound for stone to be used elsewhere, the project did not get very far. We shifted the deposit to the northeast in the process of examining every stone for more fragments of Stone 1 (with negative results).

The longitudinal dimensions for Str. 1 (and especially for 1a, 1b, and 1c), as indicated in Fig. 50 represent a compromise between memory and apparently faulty notes. The front–rear profiles are thought to be reasonably accurate.

STRUCTURE 2

This was much lower than Str. 1, and much shorter, though the suggested side-to-side dimension of Fig. 50 is a guess, from memory. What is shown in Fig. 53 was clear, without excavation. The flat surface of the upper component was so clear of debris as to positively indicate that the building, if any, was entirely of perishable materials. The basal molding feature was noted also in the Southwest Heliport Group well above the base-surface level where we see it here.

SUMMARIZING NOTE

The masonry architecture at Xutilha was probably in the main (if not entirely) a matter of court and platform building, with "superstructures" or buildings proper of perishable materials. However, more adequate investigation might show some free-standing masonry walls. It appeared to the writer that it is very unlikely that it will turn up evidence of fallen vaulted roofs, and even lime for mortar and/or plaster may not have been used. No veneering or fine stone-cutting was seen. This technical poverty in architecture in a district peripheral to Tikal and the Central Peten is interesting, particularly in combination with Late Classic stela sculpture of considerable excellence.

MONUMENTS CONSIDERED COLLECTIVELY

GROUPING

So far as the positions of the monuments with respect to each other and to the base of Structure 1 are concerned, the plan of Fig. 50 is rather accurate, but in a few cases we do not know the precise position of stela butt or altar, because of disturbance or lack of sufficient excavation. Nevertheless it is clear that Stelae 1–10 were placed more or less side

by side on a line which fails to be parallel with Structure 1 by about 9 degrees. Stelae 11 and 12, with less accurate control, may have defined a shorter line similarly oriented, but they are a meter or so closer to the structure. Thus we have two groups of stelae fairly well indicated, and label them "Group 1" and "Group 2." On the chance that it might be significant, we assign Stelae 1–3 and Stelae 4–10 to sub-groups (Groups "la" and "lb" respectively) because the gap between Stelae 3 and 4 is more than twice the greatest gap elsewhere. Having made the distinction on purely spatial grounds, it is interesting to note that there was something "abnormal" about each of the three stelae of Group la, as well as in the vertical placement of the two on the right end of Group 2b (see pp. 181 ff.). It may be that these are late resettings and that Group 1 once consisted only of Stelae 4–8. If so the divergence of the stela line from the structure line was probably already established, but for the shorter line it would have been much less noticeable.

In Fig. 55, broken into segments, we try to give a valid impression of the silhouettes of the stelae of these groups, restored to vertical positions if fallen. It is apparent at once that the lowness of various of them, as compared with others, is so extreme as to call for explanation. As developed later on, those which stand lowest are those thought to have been reset, and this may have been at a time when the taller ones had fallen. The figure is drawn as if they had not.

It does not include a probable stela represented by the fragments labeled Stone 1 and Stone Group 2. These fragments are very thin, and may be parts of Stela 5, the split-off face of which is largely missing, as well as the back above floor level. On the other hand there is no real proof that they belong together or that they do not represent an eighth carved stela, which would raise the total stela count to thirteen. To allow for these uncertainties we adopt the label "Stela X ?" for these fragments considered collectively. If incorporated in a reconstruction of Stela 5, that would stand fairly high (Fig. 72).

SHAPES

Fig. 55 also gives a visual summary of variation in the shapes of the stelae, where shapes are known. Tops are rounded or more or less flat. Sides could be parallel but in at least three cases they converge somewhat toward the bottom (Stelae 6, 9, and 10). This latter feature occurs also at Tikal, late there as here. In respect to the designs on these surely "tapering" Xutilha stelae, that of Stela 6 is in a different tradition from those of Stelae 9 and 10 (Figs. 65–71).

The shape of Stela 3 (fortunately still standing behind its altar) is so unusual as to suggest re-use of a stone cut for some other purpose.

All altars are "round," but with a tendency toward ovoid form (Altars 2, 3, 4, 7, and 8). Altar 8 is actually quite irregular and Altar 9 is somewhat so. All others are reasonably accurate in form and execution—not very good but hardly "crude."

CLASSIFICATIONS AS CARVED OR PLAIN

The Tikal system of monument labeling within carved and plain categories is not followed here because it involves judgments which may later have to be reversed. Sometimes a bald-faced guess would have to be made, as when an *in situ* butt of a stela is found and the rest has been removed, or the fallen top has not been turned. Further, all surfaces may have been seen, but in such condition that all tráces of original carving may have disappeared. With such factors in mind we may classify the Xutilha monuments thus:

Carved Stelae	7	(Stelae 2, 4, 6, 7, 9, 10, 11)
Probably Plain Stelae	3	(Stelae 3, 8, 12)
Carved or Plain Stelae	2	(Stelae 1, 5)
Plain Altars (with stelae)	9	(Altars 1–9)
Plain Altar (isolated)	1	(Altar 10)

Possibly "Stela X?" should be added as an eighth carved stela. It is probable but not really certain that plain stelae were mingled with carved ones, here as elsewhere. If so, they accounted for less than half the total, perhaps much less than half, at this small "peripheral" site.

CARVED STELA CLASSIFICATION

A modification of Morley's last classificatory carved stela scheme was explained in Tikal Report No. 4, pp. 138–141. Using it here we have:

Stela 2:	Class 1: F (probably)
Stela 7:	Class 1: F
Stelae 4, 6, 9, 10:	Class 1: F/Morley Class 7

This means that so far as known, carving was confined to the front face, and surely in four cases glyphs and human figures appeared there. Stela 2 shows faint traces of a glyph panel and carving to the right of it; and Stela 7 preserves faint traces of an upper border.

The basic "Morley Class 7" type was probably universal here, and is in agreement with Late Period stelae at Tikal.

DIMENSIONS

What is known under this heading is brought together in Table 1 on p. 180. In addition we tabulate below estimates of the heights to which the various stelae stood above the floor. These latter refer to the times of resettings where resetting is supposed to have occurred, and in the cases of Stelae 1 and 2, to incomplete stones. Stela 12 is battered at the top, and may have stood a bit higher. Where a design height is known, an arbitrary 10 cm. is added for the above-floor portion of the plain butt.

Stela 1	0.50 m.	(?; originally higher)
Stela 2	1.03 m.	(originally higher)
Stela 3	1.20 m.	
Stela 4	2.70 m.	
Stela 5	?	
Stela 6	2.98 m.	
Stela 7	1.95 m.	
Stela 8	2.30 m.	(?)
Stela 9	1.17 m.	(originally 1.72 m.)
Stela 10	1.03 m.	(originally 1.71 m.)
Stela 11	2.00 m.	
Stela 12	1.30 m.	(originally somewhat higher ?)

Scanning the main dimension table, the minimum thickness for a stela is the 13 cm. for Stela 2 and for fragments of Stone Group 3; there are other reasons for believing the fragments come from the stela.

Among the stelae which have apparently merely fallen at their original locations, Stela 6 is the tallest, but not the thickest or widest. Judging by the precisely known "HA" dimension it stood about 23% higher than the highest at Tikal (Xutilha St. 6, HA 2.88 m; Tikal

St. 11, HA 2.33 m.). Clearly the local quarriers and stone-cutters were in no way inferior, as of a time near the close of Baktun 9. They seem to have preferred relatively thinner stones—perhaps because, though more easily broken in transit, for a given height and width they would be lighter.

TABLE 1

DIMENSIONS OF TWELVE XUTILHA STELAE, TEN ALTARS, AND THREE GROUPS OF FRAGMENTS

	Stelae						*Altars*	
	L	*HA*	*W*	*HA/W*	*Th.*	*HB*	*Diameters*	*Th.*
St. 1/Alt. 1			0.54		0.15		0.69 × 0.66	0.15
St. 2/Alt. 2			1.05 (+?)		0.13		1.00 × 0.91	0.16
St. 3/Alt. 3			1.30		0.18		1.06 × 1.03	0.25
St. 4/Alt. 4		2.60*	0.99	38%*	0.20		1.12 × 1.00	0.30
St. 5			1.00*		0.25			
St. 6/Alt. 5	4.03	2.88	1.14	40%	0.34	1.15	0.85* × 0.85*	0.11
St. 7			0.80		0.18			
St. 8/Alt. 6	3.50		1.26		0.45		1.00* × 1.00*	0.25
St. 9/Alt. 7		1.62	0.95	59%	0.17		1.08 × 0.99	0.22
St. 10/Alt. 8	2.16	1.61	0.75	47%	0.18	0.55	0.86 × 0.78	0.14
St. 11/Alt. 9			1.18		0.25		0.83 × 0.83	0.20
St. 12			0.60		0.20			
Alt. 10							0.52 × 0.55	0.18
Stone 1					0.08			
Stone Group 2					0.09			
Stone Group 3					0.13			

Key: *L* (length) is from top to bottom; *HA* (Height A) is up from, and *HB* (Height B) is up to the level of lowest carving, so that *HA* + *HB* = *L*; *W* is width; *Th.* is thickness. Dimensions are maximum, starred ones being approximations; larger diameters of Altars 2, 3, and 4 known to be from side to side.

FRAGMENTATION

Stelae 3, 8, and 9 are unbroken. Stelae 6 and 12 are in two main fragments, with a probably small amount at the top of Stela 12 missing. Stela 10 is in three fragments. Stelae 4 and 11 are shattered into many fragments, found face up in semi-position. Stela 7 is in five fragments, with little if anything missing.

In the case of Stela 5, twelve thin split-off fragments account for much less than the whole monument above the *in situ* butt. Possibly excavation would reveal more fragments. If they are not in fact present it remains possible that the breakage was due to natural causes, with subsequent removal of most of the debris. As noted before, Stone 1 and Stone Group 2 ("Stela X?") may consist of fragments of Stela 5. The *in situ* butt is split into front and rear fragments.

Large upper portions of Stelae 1 and 2 are missing after considerable search, and here there are special reasons for postulating re-erection of butt fragments (see pp. 181 ff). The butt of Stela 1 is split into left and right fragments, still erect.

All ten altars are fully accounted for. Altar 5 is in three fragments, Altar 6 in six fragments in both cases in expected positions; the others are unbroken.

ARTIFACTS

The minor excavations produced only 65 sherds, two obsidian prismatic flake blade fragments, and the very fine pottery figurine head shown in Fig. 73. The latter was close to the surface, between the bottom edge of Stela 6 and its altar. The artifacts, together with the sculptured fragments of "Stone 1," have been deposited in the National Museum of Guatemala by Signal Oil Company.

The Xutilha sherds were studied by E. M. Shook, who summarized his findings as follows:

> "This small surface collection indicated pottery brought from many sources to Xutilha, mostly of Late Classic types. There isn't a single example representing a period antedating Late Classic. However, there are a fair number of censer sherds which may pertain to Late Post-Classic, equivalent to the Mayapan Period. None of the sherds suggest Post-Conquest times as would Lacandon censer sherds. Two outstanding items are included–the whistling vessel and the possible fiber-tempered sherds. The whistling vessel is unique in form and construction. Neither A. V. Kidder nor I have seen a comparable example in Mesoamerica. (Dr. Kidder examined the vessel April 9, 1958)."

MONUMENTS: NORMAL AND ABNORMAL SITUATIONS: RESETTINGS

The possibility that some stelae had been reset led to more excavation near them than had been planned, with correspondingly less attention to architecture and reconnaissance. In this Section we give some account of relevant data at each monument, and in each case consider whether they justify a hypothesis of re-erection, coming to the conclusion that this is the best explanation of facts noted at Stelae 1, 2, 9, and 10, with Stela 12 a possiblity.

The area of the monuments, before Structure 1, is flat and approximately level to the eye (no leveling instrument other than a line-level was used). On penetrating the surface layer of humus, small broken stone begins to appear at 10 cm. or so below surface. Continuing downward the concentration of small broken stone increases, and so does the size of many fragments. The original level of the top of the floor material must be estimated; where tested its bottom could be distinguished with some precision, usually about 35 cm. down. In Figs. 58 and 59 we have allowed an arbitrary 10 cm. for above-floor humus, and 25 cm. for thickness of the floor material. Elsewhere the level of *in situ* altars gives local control in approximating the level of the surface of the original floor through which the stelae had been set. The floor material rests on black clay fading into yellow, but occasional stone inclusions suggest this is "made ground," the clay having been brought from elsewhere, leveled up, and capped with stone and some binder, perhaps the same clay (Figs. 57–59).

Usually, taking the highest point on the underside of an altar as the original floor level cannot be far in error. This is assumed at Stela 2, where it is argued that certain carved fragments were deposited *in* the floor and not *on* it, as the altars seem to have been. In Fig. 58 the altar of Stela 9 is shown in approximately the position indicated by an *in situ* photograph, taken before its removal by our predecessors. In Fig. 59 the altar of Stela 10 is shown in correct relationship to the buried bottom fragment of the stela, yet its bottom is above estimated floor level. It had undoubtedly been raised 10 cm. or so by roots, which also helped to hide it from view until we looked for it. The upper line represents approximate surface level before this became a mass of roots. The altar of Stela 1 was found propped against the stela butt; the disturbance did not appear to be very recent. All other altars seemed to be undisturbed, apart from some breakage, and settling.

STELA 1/ALTAR 1

The butt is *in situ*, split into left and right halves, the top about 20 cm. above surface and an estimated 30 cm. above original floor level. A group of six small stone fragments lay slightly to the rear, upper surfaces well above the ground surface. Their thicknesses correspond to that of the stela butt. Since the surface was otherwise clean, one supposes these represent a shattered fragment fallen backward from the stela. However, there is some doubt, since they could not be fitted to each other or to the butt.

The area behind the butt was "skinned" of its humus layer with negative results. A deeper portion went down about 30 cm., extending across the northeast side of the butt, and in front of it. This revealed a small slab which could have been placed before the butt as a subfloor support, or merely thrown in a pit dug for its erection. A photograph shows it on edge, leaning toward the butt and nearly touching it. From its highest point (below floor level) it extends downward, perhaps as much as 30 cm. Its thickness is the same as that of the butt and the surface fragments to the rear.

The longest of the latter is the measure of the maximum additional height which they might account for, if they are in fact from the stela, and this is suggested in broken line in Fig. 51. Surely a large portion of the complete stela as originally designed is missing after a thorough surface search. Since re-erection of butt fragments at Tikal seems now well established (Stela 14) the re-erection hypothesis is a reasonable one here. One suspects that the buried slab may be from the stela because of the similar situation at Stela 2 (see below); unfortunately this was not thought of in the field and very little of this stone was exposed.

STELA 2/ALTAR 2

Fig. 56 summarizes the situation here. At surface nothing was visible except the altar and the butt fragment. The humus layer was removed as indicated. This revealed an upper surface of Fragment 1 of "Stone Group 3," lying flat, and Fragment 2, also horizontal, was soon found next it. These show maximum thicknesses of 12 and 13 cm., compared to the 13 cm. of the standing butt. Each shows one carved surface—badly eroded but with sure remains of non-glyphic carving. Though these fragments could not be fitted to each other nor to the butt, it is highly probable that all three are from one monument. The undersides of the Group 3 fragments were 15 cm. or so below estimated floor level; the carved face of Fragment 1 was up, that of Fragment 2 was down. It is very difficult to avoid the conclusion that these fragments were used as floor material in a patch around a re-erection of the butt fragment of the same stela.

Removing them led to the discovery of Fragment 3 of this Group. Its maximum thickness also corresponds to that of the butt (13 cm.); maximum length and width are 28 and 15 cm. respectively. It was at first classed as carved but later examination led to the addition of a question-mark. In spite of this doubt as to remaining signs of carving, its associations and the thickness indicate that this slab is probably another fragment of Stela 2. The stone was on end, its upper end a few centimeters lower than the underside of the nearby Fragment 2, recalling the somewhat similar position of the buried slab at Stela 1. The approximate horizontal position is indicated in broken line in Fig. 56; while this deeply buried stone may be within the area of a pit dug for the stela butt, it is unlikely that it was intended to give it support as did the slab of Stela 1.

If Fragment 3 is in fact part of the stela, it seems certain that a butt fragment only was erected here. If not, it might be argued that somehow Fragments 1 and 2 had worked down to the positions found, after being knocked off from a complete standing stela. But a great

deal of the stone remains missing, and on such a hypothesis one must believe several larger fragments or many others of comparable size have also worked down so as to be invisible even after the removal of the humus layer—or that they had been subsequently removed. We have, I think, very good evidence, though not absolute proof, that the Stela 2 butt fragment was re-erected after breakage, some of the breakage at least having occurred here or nearby.

STELA 3/ALTAR 3

So far as known, this erect stone is complete, but its shape is so strange as to suggest it was cut for some other purpose, and re-used as a stela (Figs. 55, 61). It is easier to imagine its erection during a period of butt-fragment erection than as a contemporary of the normally shaped stelae of Stela Group 1b.

We excavated well below floor level behind and around the left (northerly) edge, and photographed the result (Fig. 62). There was one small sub-surface slab next the left edge, which might be from a monument; and a long thin buried slab was placed vertically about 5 cm. behind the stela, doubtless as a support. This might have flaked off from another stela, notably Stela 5. However, the unusual shape of the stela is the only definitely known abnormal feature.

STELA 4/ALTAR 4

This stone fell backward and was badly shattered (Figs. 50, 63). Near the bottom end the fragments curve down and disappear below floor level. Superficial excavation between stela and altar showed the top of a long thin slab buried vertically, presumably as a front support, like the rear one at Stela 3. Thus this practice seems to be associated with erection of a normal complete Late Classic stela. There is a possibility, however, that this slab is the front face of the butt itself, split off from a still hidden rear fragment behind. In either case the slab indicates a distance of 35 cm. or so between stela and altar.

STELA 5

Excavation a little below estimated floor level revealed the top of the *in situ* butt. Front and rear faces are split apart. The front portion is much thinner than the rear one, about the same thickness as twelve irregular fragments left by Hester and Morris more or less in front of the butt. None of these fragments include an edge or definite traces of carving, and a moderate effort failed to obtain any fits. Taken together, they might account for a considerable portion—less than half—of the front face of a stela of normal size. However, excavation might reveal more, and the area to the rear was not excavated at all. One is entitled to suspect removal of fragments, including those comprising "Stela X ?" (see p. 178). Even if this occurred, breakage of a normally placed complete stela by natural causes can be postulated.

STELA 6/ALTAR 5

This stone fell backward, cracking in two near the base line of the design. Both fragments lay nearly horizontal. The main portion was raised on edge for photography and left thus, with dry-laid masonry supports. In preparation for this a pit was sunk near the southerly edge and carried under the stone. This pit provides our best cross-section through floor and underlying clay (Fig. 57). Note that the heavy stone has "bent" the line between floor material and clay. Accordingly, one may reason that altars were simply laid on the floor, though the lowest points on their bottoms may be somewhat below estimated floor level. On

the other hand, one would not expect small stela fragments to sink 15 cm. or so and thus account for the low levels of Fragments 1 and 2 of Stone Group 3 at Stela 2.

STELA 7

Fragments 1–4, which fit, account for the above-floor portion, with a rounded top. Fragment 2 measures 1.40 m. in length, with a maximum width of\25 cm. Morris informs the writer that this was found on edge. Tree and root action could account for this. A little "skinning" located the *in situ* butt behind the fallen fragments. The other fragments show no deep erosion and one would classify this as a plain stela were it not for definite remains of a low-relief border across the top on Fragments 2 and 3. In a forward fall some of the front face should have been protected. Perhaps exceedingly low relief or a mainly incised design had weathered off before the fall. Nothing else seems abnormal.

STELA 8/ ALTAR 6

This large thick stela fell backward and somewhat to one side without breaking (Fig. 50). The top is somewhat higher than the bottom and the butt extends 15 or 20 cm. under the altar. The fragments of the latter are in semi-fitting positions and are more-or-less level. Thus there is some question, at least, whether the altar may not have been placed in the indicated position after the fall of the stela, but a now vanished growing tree could have caused the altar to partly overlap the fallen stela.

STELA 9/ ALTAR 7

From the point of view of the re-erection hypothesis this complete, unbroken, and still standing stela is exceedingly interesting. An *in situ* photograph by Morris shows the altar in approximately the position indicated in broken line in the cross-section of Fig. 58. Morris and Hester moved it to the left in order to dig down to the base of the design on the front of the stela. We enlarged their pit, and later extended it to the right in the search for the butt of Stela 10. We were careful to avoid moving either Stela 9 or the butt fragment of Stela 10.

The cross-section of the figure is about in line with the right (southerly) edge of the stela, but it probably represents the situation in the whole area before it. The slope of the altar proves some settling here, and at first one is inclined to suppose this caused the bottom line of the floor material (c) to dip down toward the stela. But why does this dip continue beyond the probable area of the altar, with a total drop of about 20 cm., instead of about half this amount as at Stela 6 (Fig. 57)?

In this Fig. 58 "C. L." marks a point 10 cm. below the base of carving, estimated to have been on the "contact line" between stela and floor surface, as originally planned. This allowance for exposure of 10 cm. of the plain butt seems a fair minimum (see Fig. 71). Though we must estimate the level of the top of the floor here, the broken line (b), 10 cm. below the estimated surface line, must be approximately correct. On the basis of our figure, the planned-for contact line on the stela was found about 55 cm. below the floor surface, so that 45 cm. of the carving was buried, and there is no sign here or elsewhere of lower and earlier floor surfaces. This low position of the original contact line is another puzzler.

The stela leans forward, a common enough situation where stelae have not been otherwise disturbed. It is possible that some supporting stones next the buried front were removed by our predecessors, but there was no large flat slab set on edge, such as was seen behind Stela 2 and, perhaps, before Stela 4. If there were a few supporting stones next the

stela, they were backed only by the clay and floor material. Thus, if some force was applied to the stela tending to move the top forward, without breaking it off, there was a minimum of resistance to such a movement. Could a falling tree knock the normally placed stela forward and also drive it down into the clay about 55 cm. without breaking? This is still another puzzler.

We are led to the re-erection hypothesis again, this time with a complete stela set abnormally low so that the lower portion of the design was hidden. We may then explain the slope of the base of the floor material. For re-setting, a pit was dug and the stela was set up in it, at the low level; this was then filled with the excavated clay and a few chance stone inclusions. The top of the re-fill was not leveled and happened to slope down toward the stela. The bottom of a floor patch conformed to the slope of the clay. The upper portion of the re-filled clay has since been colored black with the passage of time and the rear of the altar has settled down somewhat, perhaps under the weight of a growing or fallen tree.

An objection is that, with such a low setting, why should the stela be found leaning forward to an appreciable degree? It is quite possible, I think, that growth of a large tree just behind it could produce the necessary pressure without breaking the stone. For this hypothesis, in theory we should have found evidence of the original pit, but this was not practicable. Our own pit was dug by an inexperienced workman where the surface was a mass of roots, and as he went down unseasonable rains caused everything to become smeared with wet clay. The area at the sides and back was left untouched, and there, in future, one should be able to determine the depth of the stela pit with certainty. We lined our excavation with stone and securely braced both Stela 9 and the Stela 10 butt fragment, which are thus still *in situ*.

STELA 10/ ALTAR 8 (with note on STELA 9)

The situation here is similar to that just described for Stela 9 in that once more we have to account for finding the lower portion of the design far below estimated floor level. However, there are various differences to be noted. In this case we deal with an upper portion (Fragments 1 and 2) and a butt fragment (Fragment 3).

In situ photographs by Morris show the main upper fragment (No. 1) in approximately the position assigned it in the cross-section of Fig. 59. We found the fragment further to the rear, where it had been moved for photography. We located the altar below a mass of roots, and with roots running under it. The latter had evidently raised its bottom above estimated floor level.

As at Stela 9, close by, the section shows a chance stone inclusion in the black clay. Again there were no large sub-floor supporting stones at the front. On the recorded section the base of the floor material (c) is approximately level, not sloping.

We show the butt fragment (Fragment 3) in plan as well as in section to bring out the fact that here the stone not only leans forward about 30 degrees from vertical as one faces it, but it is canted far to the left, about 22 degrees from vertical. Morris' photographs indicate a similar cant for the above-surface Fragment 1 before it was moved, in addition to the backward lean as in our cross-section. We found Fragment 2, from the upper left corner of the stela, just about where it could have fallen on breaking off from Fragment 1 in the reconstructed position of our figure. It is reasonably certain, I think, that the upper Fragment 1 was cracked off from the lower Fragment 3 after the complete stone had assumed the canted and forward-leaning position corresponding to that of the buried fragment as we found it. The break was more or less parallel to the surface and a little below it. It is surprising that the

upper fragment did not fall completely; we reconstruct it as in actual contact with the altar on the theory that this may have helped to keep it semi-erect.

As for Stela 9 in Fig. 58, "C. L." indicates a point on Stela 10 taken as being on the original planned-for contact line estimated as 10 cm. below base of carving; taking 22 degrees as the amount of the lateral cant, one may suppose that this is an estimated 18 cm. lower than the level of the whole contact line when the stone was vertical. Making the adjustment to minimize the depth, the contact line here comes out as 68 cm. below estimated floor level, compared with the 55 cm. observed more directly at Stela 9. Considering that the design heights of the two stones are within a centimeter of being identical and the somewhat involved manner in which we must arrive at a comparable depth for the contact line of Stela 10, we may consider the two levels as substantially the same. If both stelae were reset, the levels were more or less the same, as one would expect for such similar stones.

As at Stela 9, the question arises as to whether a falling tree or a succession of them could drive this stone down so far, this time with an extreme lateral cant as well as forward one, and probably without breaking the stone. The fact that such similar questions apply to stelae which stood close to each other makes this sort of explanation more difficult to accept than otherwise. On the other hand, if we adopt the abnormally low re-setting hypothesis, the steady pressure of a single growing tree which eventually became very large could have produced the observed disturbances of both stones.

In the case of Stela 9, this resetting hypothesis permits a reasonable explanation for a highly unusual feature. The upper and presently exposed portion is very much better preserved than the lower portion which has been for a long time protected by its sub-surface position. This is the reverse of what one would expect. But if the stone was brought here from elsewhere, it is easy to find a plausible explanation. Stela 9 may have been originally placed, in a normal manner, close to some structure, and then have fallen backward, face up. Debris and wash from the structure may have soon protected the upper portion of the design, but left the lower portion exposed for a long enough time to cause the observed extremely weathered condition there. Then we may suppose it was moved for re-use here. On the other hand, Stela 10, which so far as ascertained shows no such differential weathering, may have originally fallen face down or, if face up, it may not have been better protected at one end only. However, a proper study of the buried fragment of Stela 10 may yet show a similar situation.

STELA 11/ ALTAR 9

There was no excavation here and no suggestion of anything abnormal. With sufficient time something could be learned respecting the designs on the badly eroded face-up carved fragments of the stela, which fell backward and to the left (Fig. 50).

STELA 12

This stela had slumped back and cracked into two large fragments. About 1.00 m. of the upper one showed above the surface. This was followed down to the break, about 1.30 m. from the top. The butt was followed, at a steeper angle, until the side began to curve inward. The total length of this fragment can be estimated as about 0.75 m., giving about 2.05 m. for the two combined. The front face (and presumably the rear) lacks any sign of carving. The top is not smooth and possibly something has been lost here.

In Fig. 55 we theoretically re-erect this stone as it probably stood, though without precise controls. Even if it was once a little longer than as shown, the proportion of the total length which was buried seems to be more than one would expect. In view of the apparently

intentional abnormally low placements of Stela 9 and 10, one wonders if the low level of Stela 12 results from a re-setting in which it was desired that the stela should not stand very high above the floor. Of course, considered in isolation, this thought would not occur to one. This much may be said for the idea. If, in Fig. 55 we had shown Stelae 4, 5, 6, 7, 8, and 11 as fallen, Stela 12 would seem more "at home" with those which, on more specific evidence, we have been led to suppose were reset.

ALTAR 10

This altar was lifted up sufficiently for us to ascertain that the underside was plain, like the upper one, and dropped back into place. It is the smallest one encountered, and the only one not found before a stela or stela fragment, except Altar I, also small, which was leaning against the erect butt of Stela 1. It seems possible that Altar 10 was once placed before Stela 12, which is narrow and now lacks an altar, and at some time was moved about 12 m. to the southwest (Fig. 50). The isolated position of the altar is unusual, whether or not it once functioned with Stela 12, and whether or not that stela is in its original position.

SUMMARY OF EVIDENCE FOR RESETTINGS

In considering the stelae and their altars individually we have been repeatedly led to the resetting hypothesis as the best explanation for observed sure or probable facts considered to be "abnormal." If we consider these as a group, two things may be said. The supposedly reset stones stood much lower than any of the others where those were still standing. With the exception of Stela 12, we find the abnormal situations only at the extreme ends of the line formed by Stela Groups 1a and 1b. In Group 1a (if the hypothesis is correct), the lowness is due to use of fragments and a stone of peculiar shape while in the two cases at the end of Group 2a it is due to low placement of complete stelae. I think this spatial distribution of differing abnormal factors tends to fortify the individual applications of the hypothesis, which are more convincing in some cases than in others. They fall into the categories of the tabulation below, which may be compared with the similar one covering other sites in Tikal Report No. 3, p. 72.

Complete stelae: abnormal positioning implying resetting

Carving partly buried
- Stela 9, with plain altar in normal position
- Stela 10, with plain altar in normal position

Abnormally large proportion of plain stela buried
- ?? Stela 12

Large fragments of stelae reset

Bottom fragments
- ? Stela 1, with altar (possible fragment of same stela surely below floor)
- ? Stela 2, with altar (probable fragments of same stela surely or probably below floor)

Unusual shape implying re-use as stela
- ? *Stela* 3, with altar

Question-marks indicate which are regarded as the weakest cases considered individually. In this connection it should be remembered that if bottom fragments were in fact reset, mere absence of upper fragments would not prove it. In the case of Stela 2 the evidence of sub-floor fragments is regarded as very good, and more excavation might remove all doubt.

Stelae 9 and 10 are the surest cases. These were complete, like Stela 4 at Tikal, but they were not set upside down. If the hypothesis is accepted for Stela 9, its differential weathering has an important bearing on the dating of the resetting complex, here if not elsewhere. We have reasoned that before resetting it must have lain face up and partly protected by debris while the lower portion of the design was weathered much more than the upper portion. If this is what happened, one must allow a considerable gap between the time of cessation of stela carving and original erections, and the time of resettings. That is, we need a time during which the site (or at least parts of it) was falling to ruin and the stelae (or some of them including Stela 9) were down. All local carved stelae, so far as we know, were first carved and set up late in the Late Classic Period (see pp. 189 ff). Allowing for a subsequent period of neglect or abandonment of the site pushes the resetting definitely into the Post-Classic Period. This is entirely consistent with Shook's findings respecting the pottery (p. 181) and Proskouriakoff's estimate of the Dedicatory Date of Stela 6 as within the limits 9.18.0.0.0–10.0.0.0.0. (p. 190).

In the preliminary study of similar situations at Tikal, Yaxha, and Caracol, I suggested that all are probably referable to a single not very long period (Tikal Report No. 3, p. 75). This is the sort of working hypothesis which might be wrong, and one should be on the lookout for actual evidence. Under it, the evidence here at Xutilha seems to call for dating the Tikal resettings well after the 10.2.0.0.0 of Tikal Stela 11, with no particular limit on the precise position in the Post-Classic Period. Further, with this dating, when resetting of fragments is involved, the necessarily prior breakage, or some ot it, might also be Post-Classic, and due to natural causes, or partly this and partly due to intentional breakage at the end of the Classic Period.

At Tikal one must deal with the special circumstance that all re-set carved stelae and stela fragments seem to have been carved in the Early Tikal Period, corresponding more or less to "Early Classic." This led Shook to postulate that the breakage occurred at the end of the Early Period there (quoted in Tikal Report No. 3, p. 75). To reconcile the indicated selectivity with a "Terminal Classic" or Post-Classic dating of the breakage,one may postulate resetting of Early Period Tikal stones only as being because at Tikal they happened to be smaller and lighter than Late Period ones. Here at Xutilha we have only Late Classic monuments, so far as known, but they vary greatly in original size and weight. There is no evidence of resetting anything larger than Stelae 9 and 10. These, though complete, are quite modest in length and breadth, and quite thin. Fragments, of course, are smaller and lighter than complete stones. Size and weight may have been limiting factors at both sites, and one would expect such limitations if the resettings amounted to feeble revivals of the stela–altar pattern in Post-Classic times. One will have a check on this as dimensions of abnormally reset plain stelae or stela fragments at Tikal are brought into the picture.

In the meantime I suggest that Xutilha evidence tends to support the assumption that there was a single period during which the habit of resetting of stela fragments (and occasionally of whole ones of modest size)spread widely through the Central Area; and that it argues for a dating of this phenomenon well into the Late Classic Period. These are still working hypothesesand one should seek more evidence for or against them.

DESIGNS AND INSCRIPTIONS ON CARVED STELAE

Of the twelve known stelae, seven have been classed as carved, while Stone 1 and Stone Group 2 probably are from an eighth, "Stela X ?," which may in fact be Stela 5. Knowledge of designs varies from fairly good (apart from universally eroded glyphs) to next to nothing. For Stela 7 we have only a trace of a border. We do not illustrate Stela 11 or the lower fragments of Stela 4 because photographs have turned out to show little of value, though more could undoubtedly be recovered. The lower portion of Stela 10, as drawn in Fig. 69, is based on a cast from a poor too-thin mold. The drawing incorporates helpful suggestions by Proskouriakoff, who was good enough to study photographs of the unsatisfactory cast. The solid line portions are believed to be reasonably reliable.

GROUPINGS BY HEIGHT, DESIGN LAY-OUT, AND BODY POSTURE

The designs are best known for Stelae 4, 6, 9, and 10. These can be placed in two typological groups differing in the characteristics listed below. Some (if not all) of the other four carved stelae may belong in these groups, as suggested below the line in the tabulation, which utilizes symbols for the criteria defining the two types, as follows:

T	"Tall"
M	"Medium Height"
G 1	Main inscription runs across top of design panel, with downward extension at left (inverted-L shape)
G 2	Main inscription runs down side, starting at upper left corner of design panel
a	Head of principal (or only) figure in profile, body in front view
b	Entire principal (or only) figure in profile

The three criteria used are potentially independent, contribute importantly to the total ef-

Stela 4	T – G 1 – a	Stela 9	M – G 2 – b
Stela 6	T – G 1 – a	Stela 10	M – G 2 – b
Stela 11	T – ? – ?	Stela 2	? – G 2?-?
		"Stela X ?"	? – G 2?-b?
		Stela 7	M – ? – ?

fect and the reality of the two types is established by two sure examples of each (Stelae 4 and 6, Stelae 9 and 10). A reasonable hypothesis is that the stelae of one type are earlier or later than those of the other. This seems supported in some degree by more sophisticated style analysis by Proskouriakoff, covered in the next section.

There is no reason for supposing that the other four stelae (Stela 11 and Stelae 2, X ?, 7) did not fit into this scheme, as provisionally suggested above, below the line in the tabulation. Doubts are at a minimum in the case of Stela 2. Because it combines considerable width with extreme thinness, it probably was not very tall. Proof that a vertical glyph panel starts at the top is lacking, but the lower portion of such a panel survives, at the left, and consists of a single column as on Stela 9. There is little doubt that "Stela X ?" also belongs with this group, provided our assemblage in Fig. 72 is substantially correct.

Stelae 9 and 10 are thought to have been reset, and of course the heights in this local "typology" are the original ones. It is interesting to note that Stela 2, also thought to have

been reset (though as fragment) seems to correspond in type and so, presumably, in chronological period.

If required to guess which type is the later, one might choose "Type 2" of Stelae 9 and 10 on the basis of Proskouriakoff's opinion, quoted in the next section; but she makes it clear that this question cannot be decided with certainty.

STYLE-DATING IN PROSKOURIAKOFF SYSTEM

Photographs of Stelae 6, 9, and 10 were submitted to Proskouriakoff in the hope that firm dedicatory date limits might be obtainable with her system of stylistic analysis (1950). Quotations from a resulting personal communication are used with her permission.

For Stela 6, the best example of our "Type 1", the result is highly satisfactory. It "is so like those of Ixkun. For this stela I think the dates 9.18.0.0.0–10.0.0.0.0 would set reasonable limits." We give some of the specific background for this finding. Ixkun Stelae 1 and 5 are tall, like Xutilha Stelae 4 and 6. Morley gives 3.81 m. for the above-ground height of Ixkun Stela 1, and for Ixkun Stela 5 estimates this figure as 3.50 m. These two stelae are epigraphically dated at 9.18.0.0.0 and 9.18.10.0.0 (Morley, 1937–1938, Vol. II, pp. 177–185); these readings fall within the Proskouriakoff limits which are, respectively, 9.17.0.0.0 ± 2 katuns and 9.19.10.0.0 ± 2 katuns (1950, p. 189). Xutilha Stela 6 corresponds most closely with Ixkun Stela 4, for which Proskouriakoff obtained the limits 9.19.0.0.0 ± 2 katuns. This suggests that Morley should not have made this the earliest of the Ixkun series with a guess at 9.16.10.0.0???. Though Morley gives no dimensions for Ixkun Stela 4 he reproduces a drawing by Spinden. It is long and narrow and obviously was tall. As on Xutilha Stela 6 (and almost certainly on Xutilha Stela 4 also) the principal figure on Ixkun Stela 4 holds a mannikin scepter in his right hand (Morley, 1937–1938, Vol. II, pp. 171–173; V, 2, Pl. 49a where Stela 4 is mis-labeled Stela 5,

We may safely conclude that the tallness and certain design elements of Xutilha Stelae 4 and 6 (and perhaps of Stela 11) involve influence from Ixkun to the north, or *vice versa*; and that this operated near the end of Baktun 9.

Turning to Stelae 9 and 10 (our "Type 2"), outside connections are not so easy to pin down, and precise chronological limits are not attempted.

Of these two stelae Proskouriakoff says the following. "I think the style...is too similar for the chronological distance between them to be significant. If anything, Stela 9 has more obviously 'decadent' traits, such as a tendency to use broad grooves instead of relief, and non-Maya facial features. Both sculptures suggest to me a relation with Yucatecan sculpture, possibly because of the gestures of the hands and the very long hangings from the ex or *maxtli*, but I think this is a very general comparison. The crudely drawn hands, the straight nose on the belt mask of Stela 9, and the rendering of the eye on the main figure are very different from the Classic rendering of these details...The highly placed rear mask (of Stela 10) is typical of Yaxchilan sculpture (see Stelae 3, 6, 7) and I think the gestures of the hands are not dissimilar. The western affliations of these monuments I think is quite noticeable in contrast to Stela 6... (Stelae 9 and 10) are obviously in a different tradition from Stela 6, so a comparison is fruitless. I suspect them to be Cycle 10 monuments, but I can't say this is certain."

INSCRIPTIONS

There are no legible dates. While basic outlines of glyphs may be clear, details seldom survive to validate an interpretation. Definite remains of bar-dot numerals are so scarce as to suggest a decided preference for head-variant numerals in recording dates, and this complicates the problem of recognizing existence of now illegible dates. However, a few further general remarks may be made, justified by detailed comments on individual stelae which follow.

Though, on the basis of style, Stela 6 dates from very late in Baktun 9, and Stela 9 may even belong in Baktun 10, both apparently opened with Initial Series, recalling the Baktun 10 IS of Stela 11 at Tikal (10.2.0.0.0). There is good reason to think Xutilha Stela 6, like Tikal Stela 11, was a katun-marker with the IS giving the dedicatory date, though the IS may have been incomplete. Since Stela 9 recorded only one date, its IS was probably also a hotun marking date, (if not also at a katun end). There is a certain degree of probability that "Stela X?" was a hotun-marker, and again the DD may have been given by an IS, and this could have been in Baktun 10, or late in Baktun 9.

In general, dating by PE rather than IS is common in Late Classic times, and there are hints that this was the style on Stela 10, apparently close to Stela 9 in time, and on Stela 2. So far as one can tell, a presumed opening date on Stela 4 may have been either a PE or an IS. As noted, there is some doubt about the completeness of the IS on Stela 6, and for Stela 4 and 6 some doubt as to the probable order of reading the glyphs. The latter circumstance, depending on the glyph lay-outs, is perhaps another significant linkage between these two.

STELA 6

The vertical arm of the main panel consists of a single column of four blocks (Figs. 65, 66). The width of this column, A, is much greater than the width of any other, so that these four blocks catch the eye at once. The implication seems to be that we should read straight down Column A and then, presumably, pass to the head of Column B. If we do this we have a remaining odd number of columns to dispose of. One must consider whether to read in normal double column order until the odd column is reached, which seems the most likely; or whether some other order may have been intended. Reading horizontally across Rows B–F would not be an implausible variant of reading thus across all rows, for which rare precedents could be cited.

Leaving this matter unsettled, the vertical reading of Column A is confirmed by its content. At A 1 we have the reasonably certain remains of an ISIG, and expect the baktuns, katuns, and tuns of an IS to follow. Confirming, remains of main signs at A 2 and A 4 seem best as bird heads and there may have been a bird head at A 3. Before the head at A 4 is a clear symbolic zero sign, raising a strong presumption that the prefixes at A 2 and A 3 are head-variant numerical coefficients. I think we may read this column with confidence as ISIG – ? baktuns – ? katuns – 0 tuns.

We have labeled three groups of glyphs at lower levels as Panels "x," "y," and "z." The three glyphs at A 1–A 3 are eroded, but they certainly do not give the uinals, kins, and SR date of our IS, confirming that we should pass to Column B of the main panel. Precedents could be cited for giving a last part of an IS at reduced scale. Assuming this here, in some order of reading one would expect confirmation by finding an expected glyph-outline or two at the expected position. It seems to me that the extent of erosion in Column B–F is not suf-

ficient to account for entire absence of such confirmatory evidence. This suggests, at least, that the Initial Series number was cut off when the essential information had been given. A not-too-far-distant and fairly certain precedent is Stela 8 at Caracol (Satterthwaite, 1954, Fig. 18). There in a 3–glyph panel at upper left we have remains of an ISIG followed by 9 baktuns 19 katuns, and it is reasonably certain that this number was not completed on other small panels. Here at Xutilha, adding the information that the tun was at zero may have emphasized that one was at a katun end.

Whether or not the IS on Xutilha Stela 6 was complete, since the tun coefficient is zero we are probably in fact dealing with a katun-marker. As such, within Proskouriakoff's style-date limits the alternatives are: 9.18.0.0.0., 9.19.0.0.0, and 10.0.0.0.0.

STELA 4

In this case the vertical arm of the L–shaped panel consists of two normal-width columns, and the total number of columns is odd (Figs. 63, 64). Probably one read in double column as far as possible, and then downward in the final Column E. A complete IS could have been disposed of in the eight blocks of the longer Columns A–B, but erosion is extensive and photographs not very satisfactory. The safest view at present is that there is a general probability that the text opened with an IS or PE date; if the latter, it certainly is lost beyond recall. At D1 there was a bar-dot coefficient of 8 or 13 before what might be a Day Sign. In the suggested order of reading this would be the 10th block, followed by an 11th at C2 which may possibly have had a bar-dot coefficient before a month sign with superfix, and with room for a high month coefficient. If 3–question-marked readings are worth anything, one may say that this might be a dedicatory date PE at 9.17.0.0.0 13 Ahau 18 Cumku, one katun before Proskouriakoff's early limit for the similar Stela 6.

STELA 9

There is no doubt that the first six blocks of the 8–block panel were used to record an ISIG and IS number. (Figs. 70, 71). A1 gives the ISIG; main signs at A2 and A3 seem to be bird heads, while that at A5 is not; at A4, though much of the head itself is gone, a tun glyph as headdress is clear. Though there are no bar-dot coefficients there is room for prefixed head-variant numerals in all of the five blocks after the ISIG, and prefixes may be recognized as heads by inspection. At the bottom, erosion of details in A7 and A8 is most complete. Unless these blocks were divided they were both needed for the terminal CR date, without recording Glyph G.

If this date is ever read, dependence must be on the period coefficients exclusively. Variously lighted photographs of the original and of a probably not very good cast are at the disposal of those who may wish to try. Fig. 71 is restricted to what seemed sure, and is not sufficient.

Perhaps it is worth noting that in laying out the blocks, the first six were made noticeably higher than the last two, and that the first five are noticeably narrower than the last three. The amounts of these differences are not great, however, and they suggest carelessness rather than intention.

STELA 10

Judging by what has survived, the glyphs of the last seven blocks are non-calendric, leaving the first seven for any date or dates (Figs. 67–69). Since an IS normally requires eight

or more blocks, as on the similar Stela 9, and since a dedicatory tun-end date is usually given, it seems probable that this was given as an opening PE, now lost. Though this inscription is longer than that of Stela 9 it is visually much less prominent. Probably the relatively narrow width of the stone precluded a single column running clear to the bottom.

STELA 2

The surviving last three glyphs of the 1-row panel are non-calendric (Fig. 60). Though this panel probably ran clear to the top, it seems doubtful that there was room for an IS. A lost opening dedicatory date, in PE style, may be taken as probable.

STONE I, STONE GROUP 2 (STELA X?")

Whether this is part of a stela or not, the ISIG is presumably part of a complete IS. The ISIG variable appears to be the jaguar, indicating Pop in the terminal date (Fig. 72). If we reconstruct "Stela X?" on the model of Stelae 9 and 10 (as in the figure), it is possible at least that there was only one date, and that the IS gave the DD, presumably a hotun if not a katun ending. Speculating along these lines, reasonable alternatives for it would be 9.16.15.0.0 7 Ahau 18 Pop??? and 10.0.10.0.0 6 Ahau 8 Pop???

REFERENCES

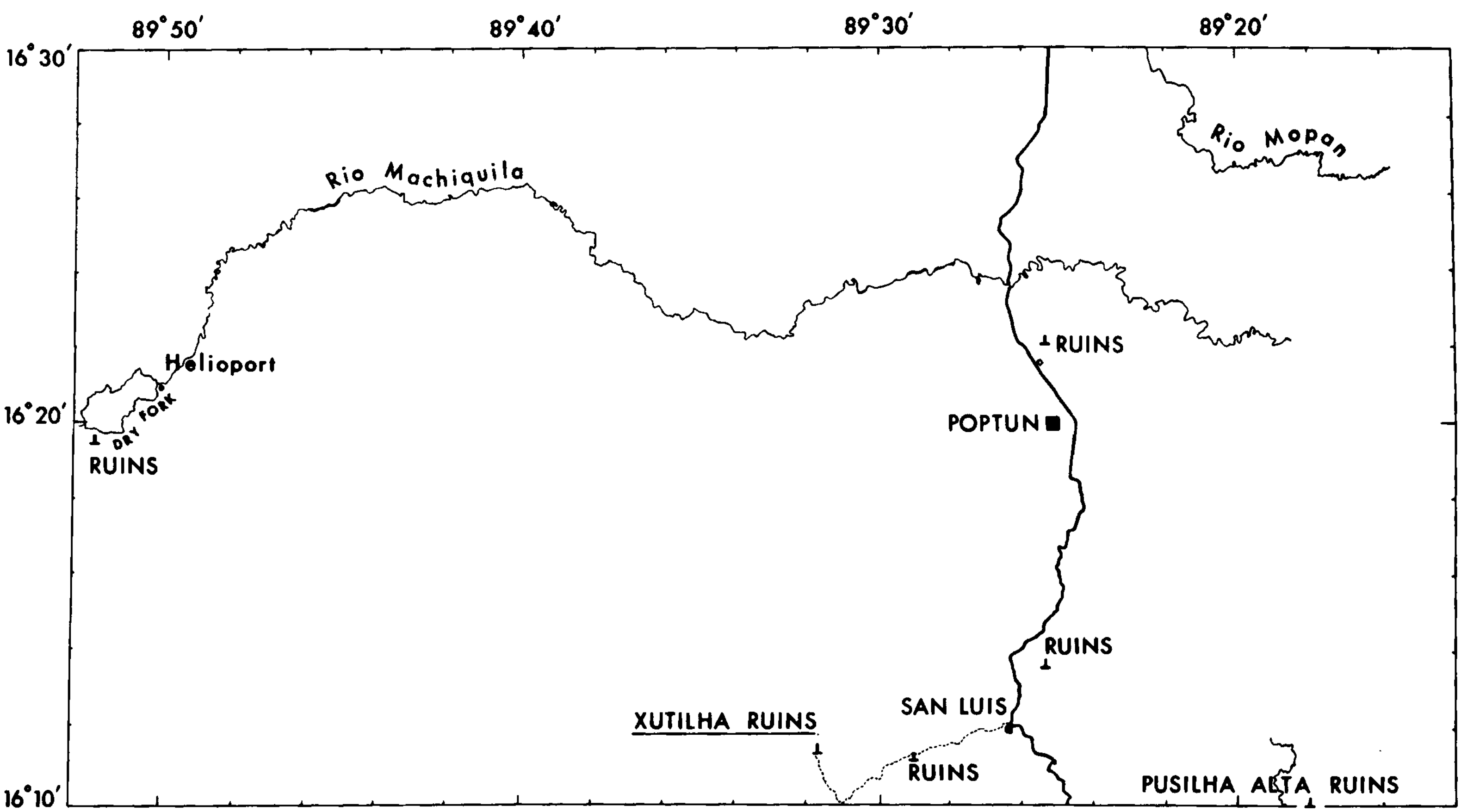
Morley, S. G.
1937–1938
The Inscriptions of Peten. *Carnegie Institution, Publication* 437. Washington.

Proskouriakoff, T.
1950 A Study of Classic Maya Sculpture. *Carnegie Institution of Washington, Publication* 593. Washington.

Satterthwaite, L.
1954 Sculptured Monuments from Caracol, British Honduras. *University Museum Bulletin*, Vol. 18, Nos. 1–2. Philadelphia.

Shook, E. M.
1950 Descubrimientos Arqueologicos en Poptun. 1: Vestigios Arquitectonicos. *Antropologia e Historia de Guatemala*, Vol. 2, No. 2, pp. 3–6, Figs. 1–12. Guatemala.

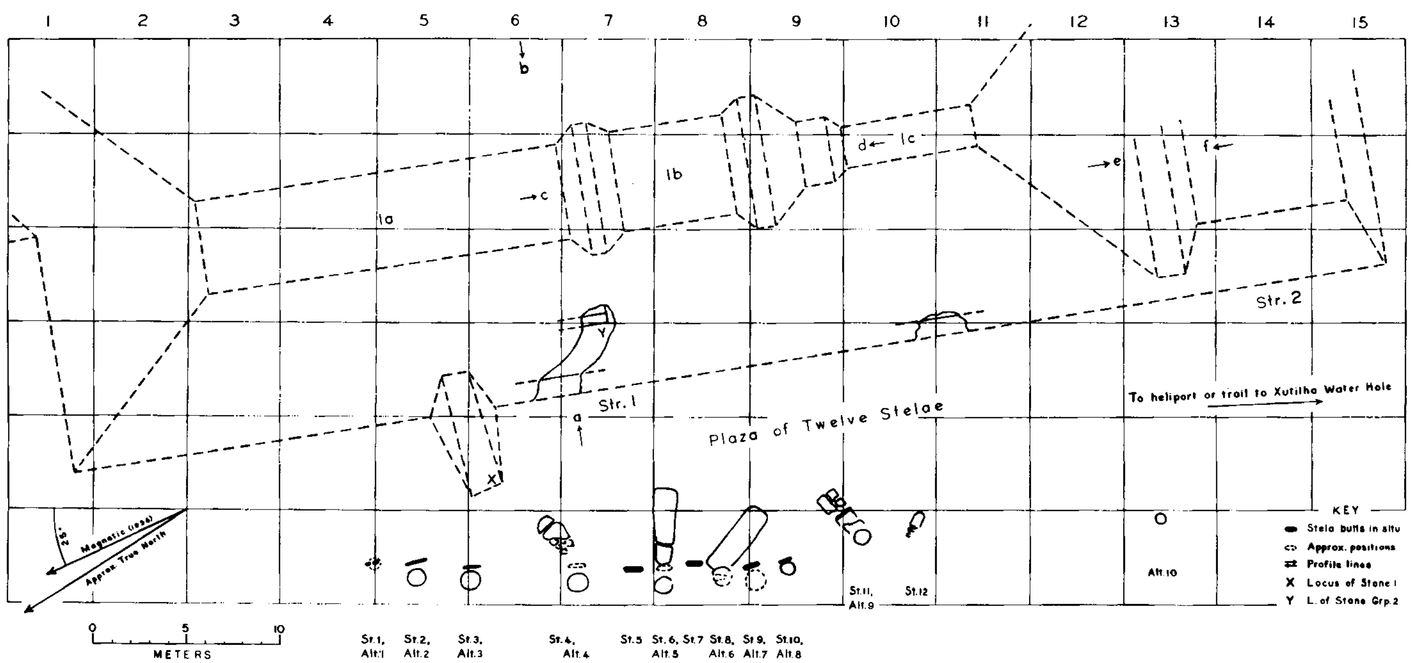
TIKAL REPORTS
Nos. 3, 4.



Map showing location of Xutilha. After Spencer C. Morris, courtesy Signal Oil and Gas Company.

Fig. 49

Fig. 50



Portion of Central Group, Xutilha, showing monuments and mounds of Structures 1 and 2.

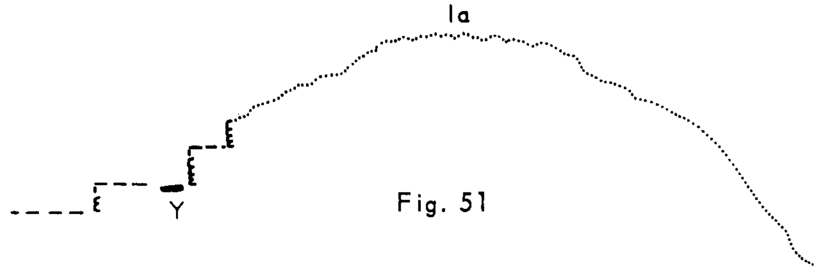
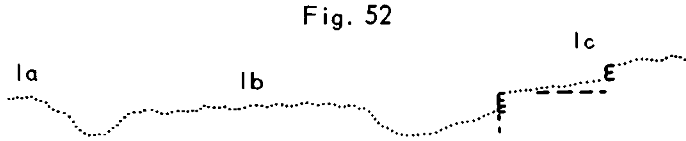


Fig. 51

Fig. 52



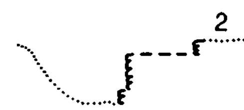


Fig. 53

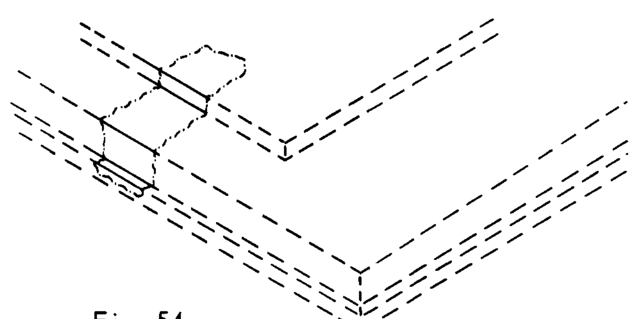


Fig. 54

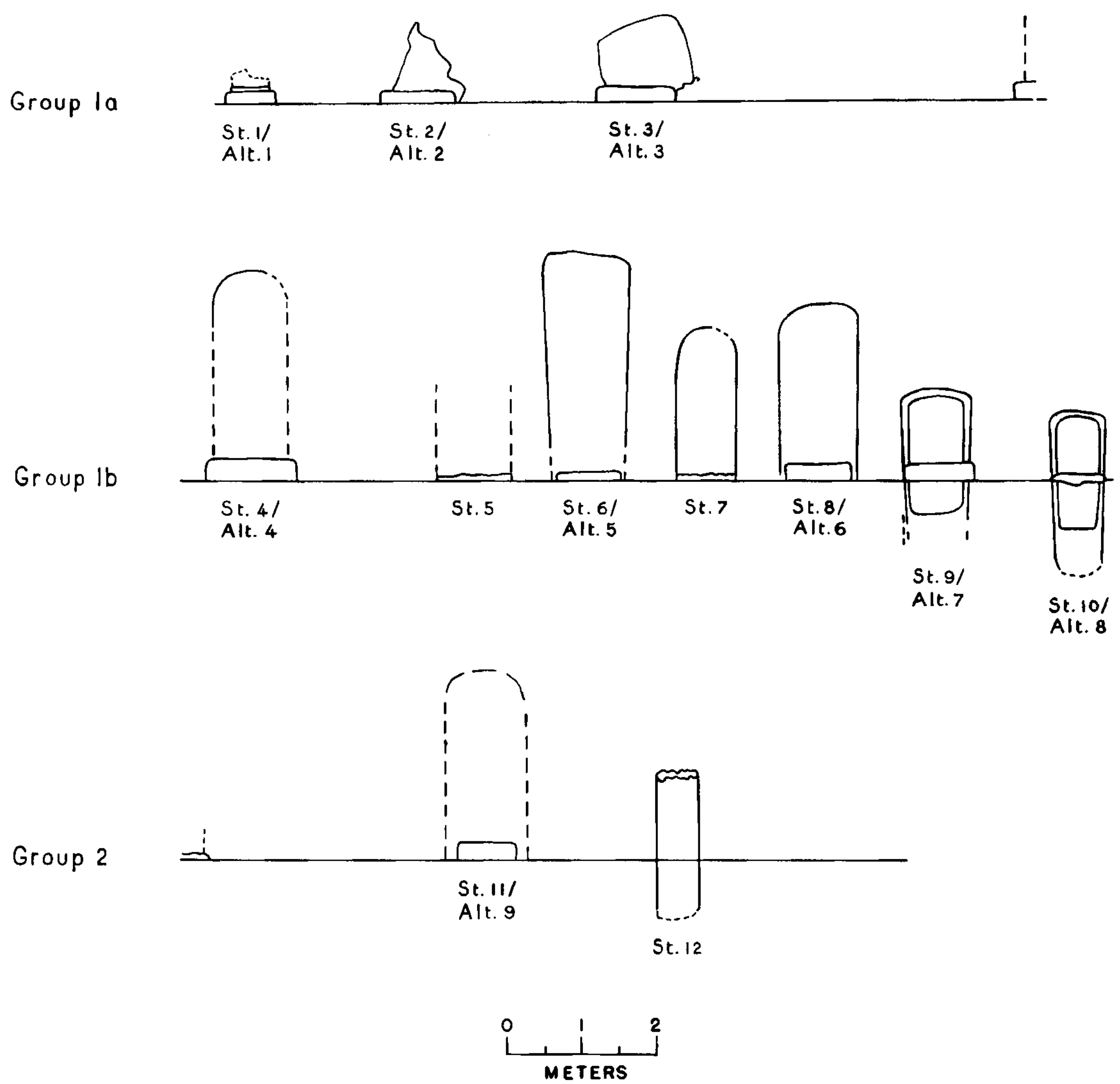
Fig. 51. Structure 1a: cross-profile a-b.

Fig. 52. Structures 1a, 1b, 1c: partial longitudinal profile c-d.

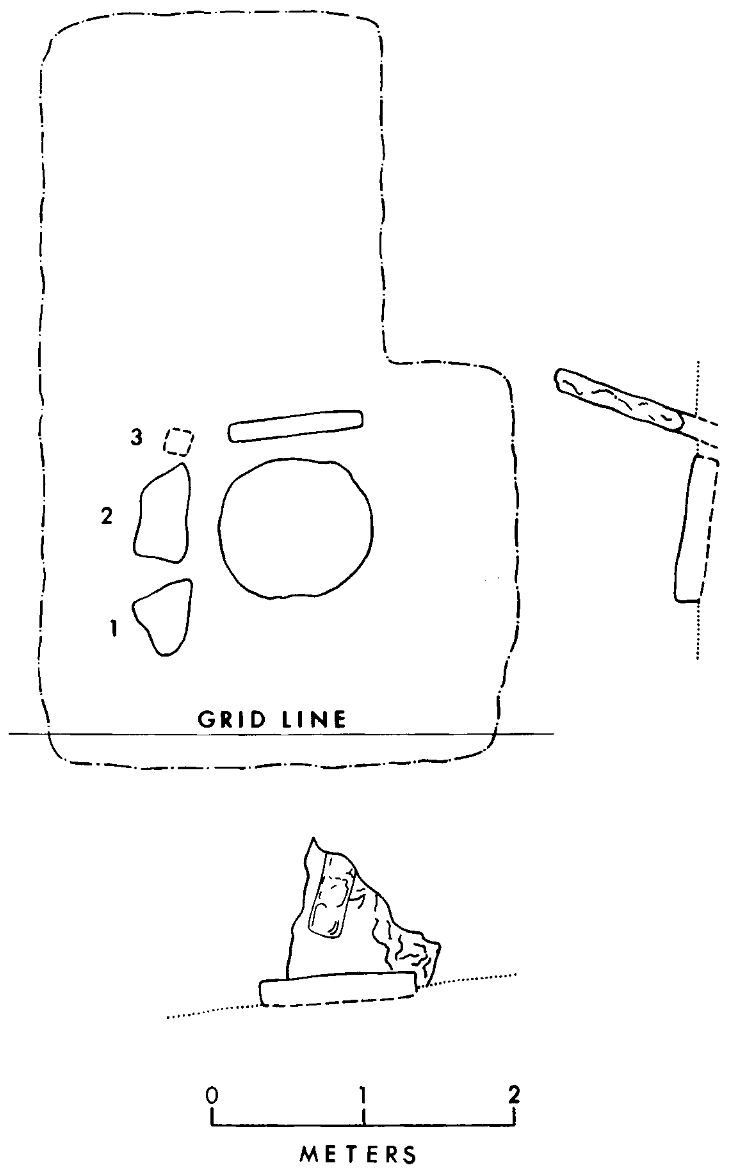
Fig. 53. Structure 2: partial longitudinal profile.

Fig. 54. Structure 2: partial reconstruction (isometric).

Fig. 55



Stelae and altars. Overlapping outline drawings showing spacing, shapes of stelae and approximate heights when last erect. Upper portions of Stelae 1 and 2 missing, lower portions shown believed to be reset fragments; Stelae 3, 9, 10, and possibly Stela 12 believed to be reset.



Stela 2/Altar 2 and Fragments 1–3 of Stone Group 3. Plan, with side and front elevations of stela and altar. Humus removed within excavated area; excavation to depth of 20 cm. at left of stela and altar; upper faces of Fragments 1 and 2 at level of top of broken stone layer; Fragment 3 lower, at approximate position indicated in broken line.

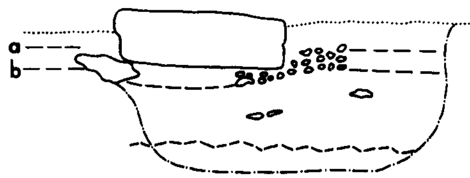


Fig. 57. Stela 6. Cross-section through stela and excavated pit; a, b, approximate levels of top and bottom of layer of broken stone; irregular lower line indicates approximate level where upper black clay with occasional stone inclusions fades to yellow.

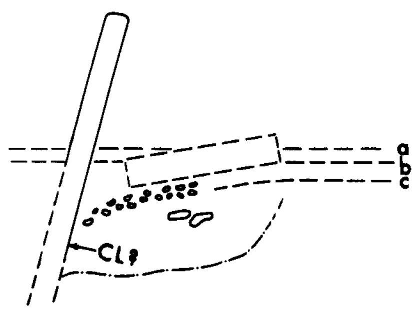


Fig. 58. Stela 9/Altar 7. Cross-section through stela and excavated pit; a, b, estimated surface and ancient floor levels before disturbance by roots; c, approximate bottom of broken stone layer and top of black clay with stone inclusions; position of altar reconstructed from photograph; "C. L." marks point on estimated original "contact line" of stela and floor.

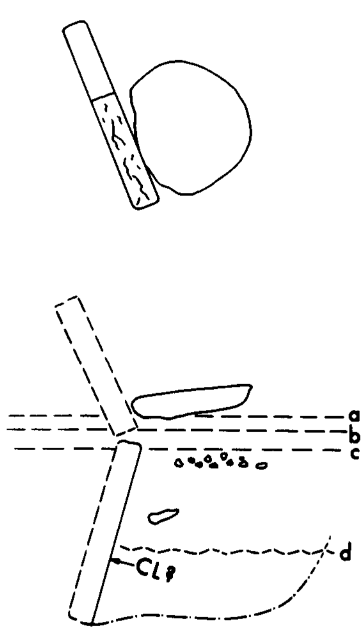
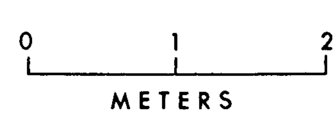


Fig. 59. Stela 10/Altar 8. Above: plan showing lower fragment of stela, at an angle (side and broken top surface visible). Below: cross-section through upper and lower fragments of stela, and through altar and excavated pit (position of upper stela fragment reconstructed from photographs); a, b, c, and "C. L." as in Fig. 58; d, approximate line where upper black clay with stone inclusions fades to yellow.



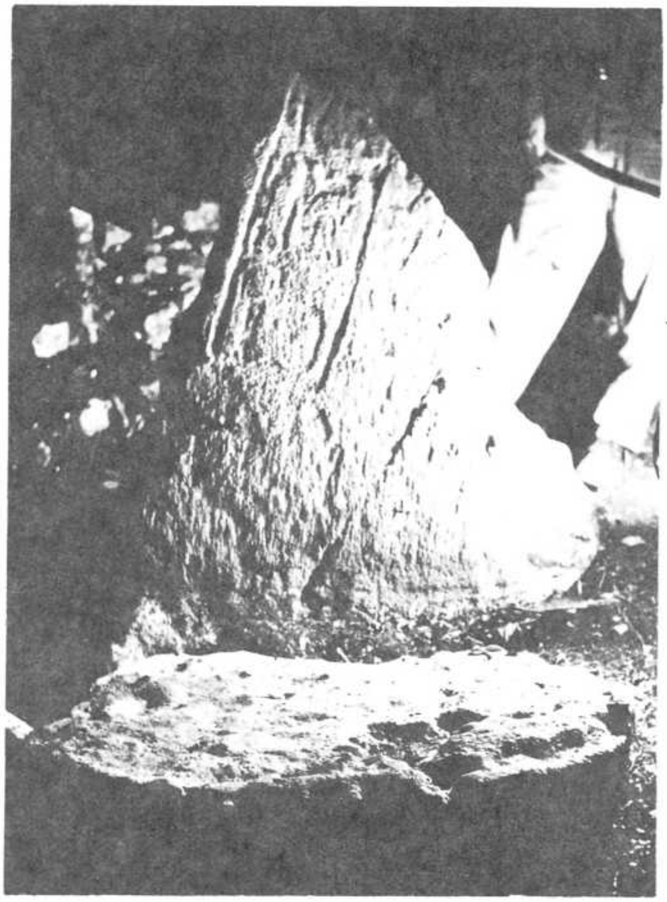
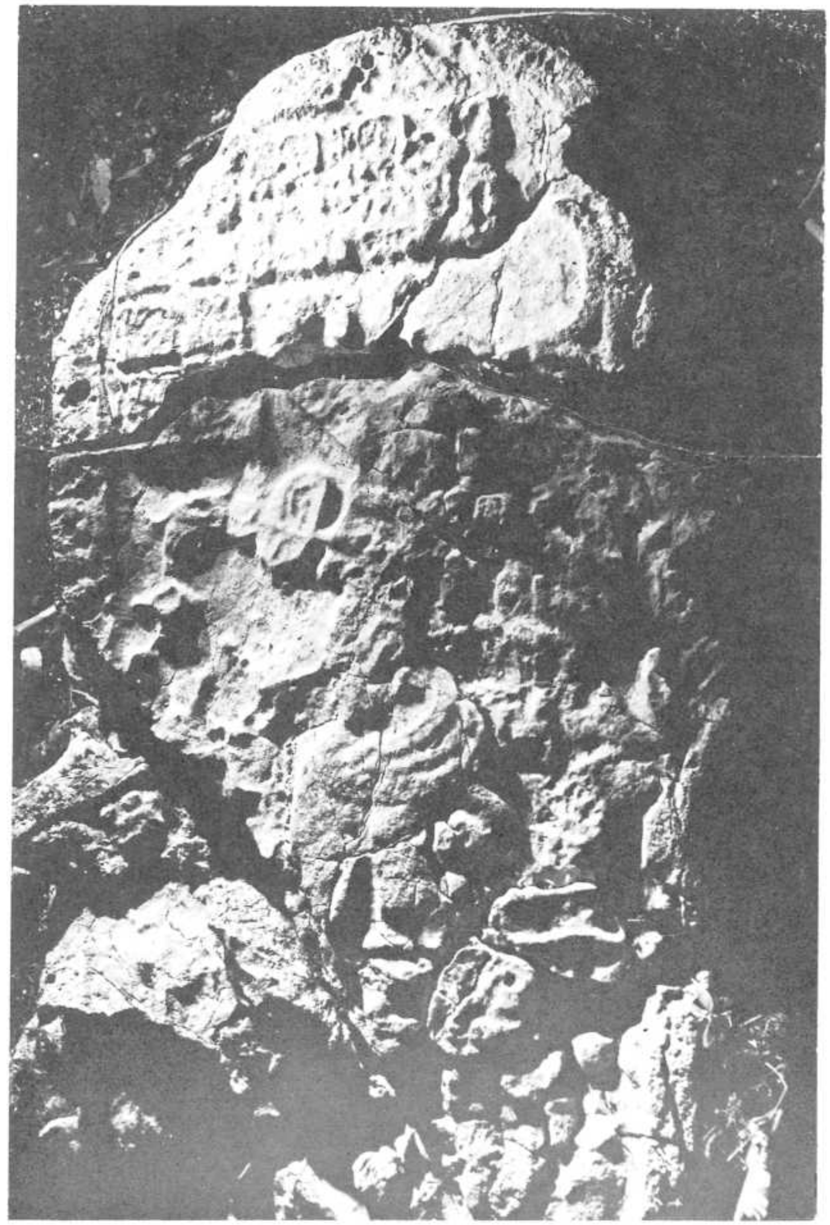


Fig. 60. Stela 2/Altar 2: photograph of monuments *in situ*, showing bottom of glyph panel and carving to right, on stela.

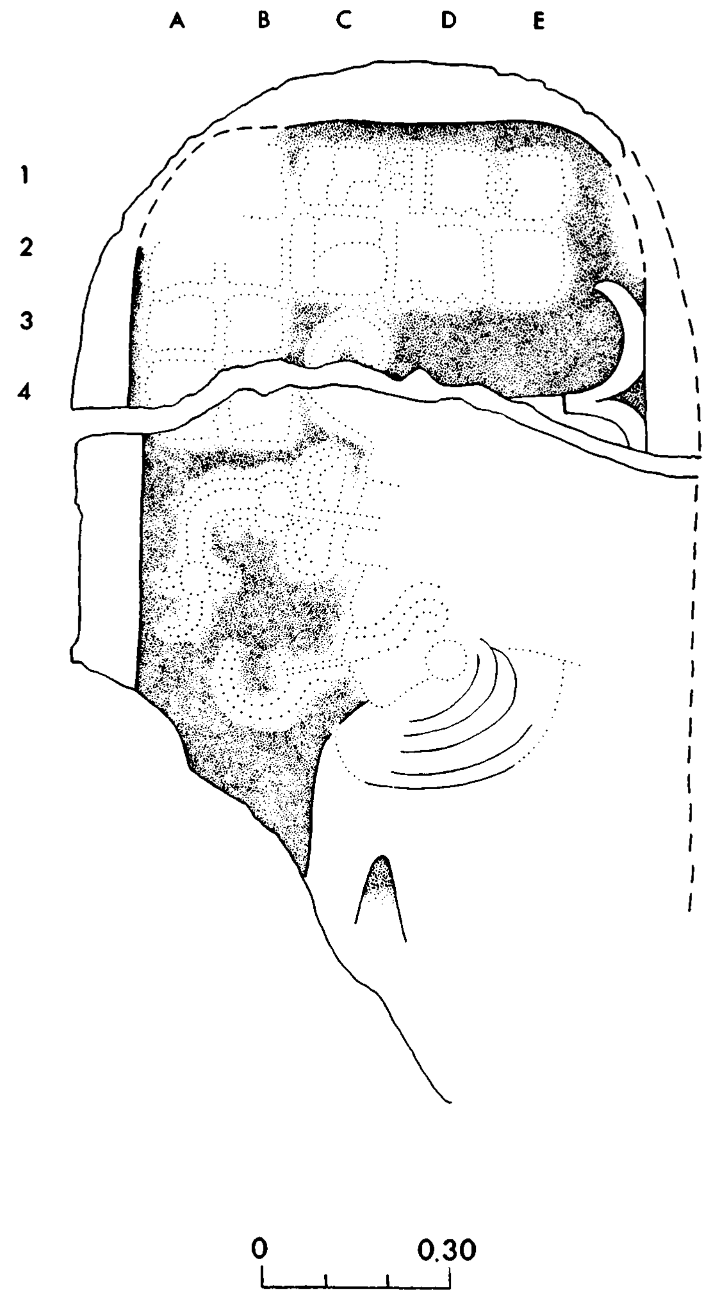
Fig. 61. Stela 3/Altar 3: photograph of monuments *in situ*.

Fig. 62. Stela 3/Altar 3. Photograph of monuments *in situ* after exposing sub-floor supporting stones (left from and toward rear).

Fig. 63



Stela 4. Photograph of upper fragment placed in approximately correct relationship to photograph of lower fragments, the latter *in situ*.

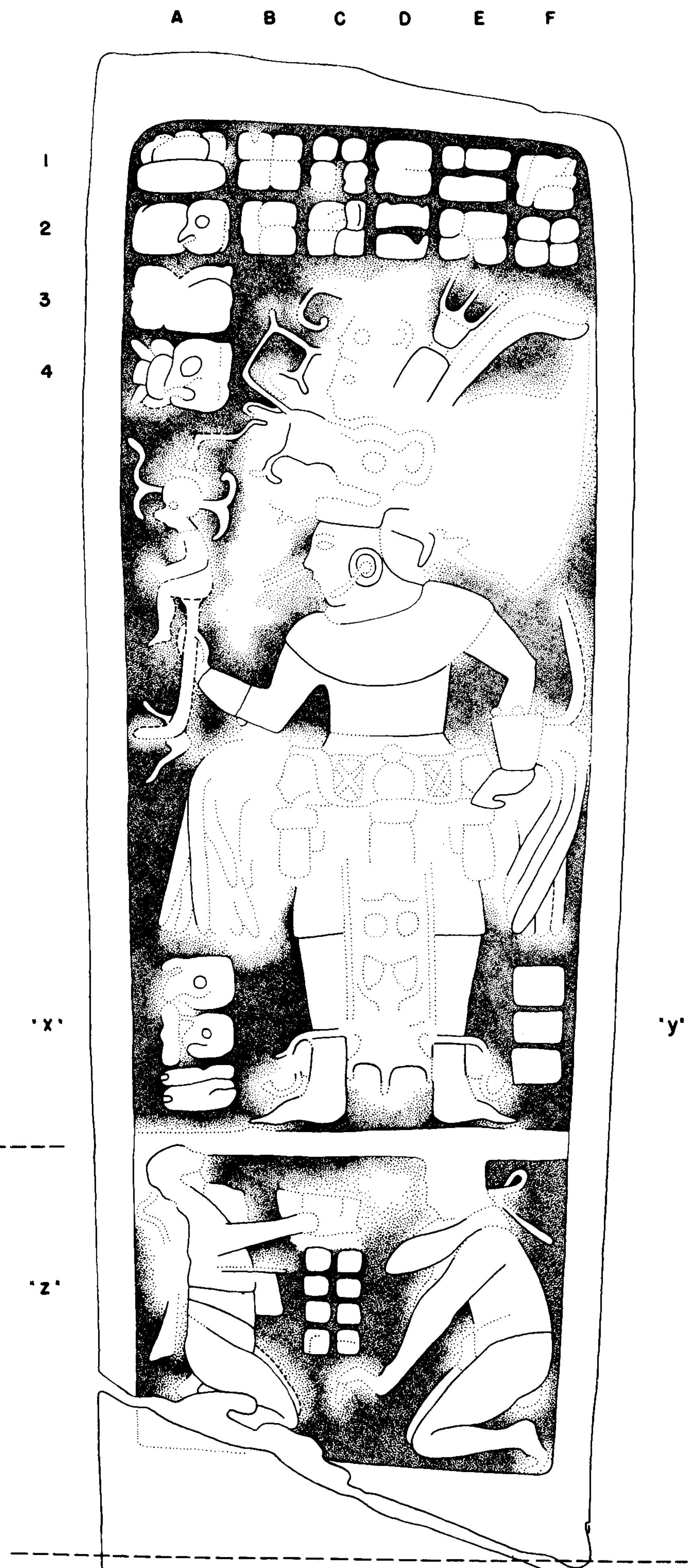


Stela 4. Drawing based on Fig. 63.

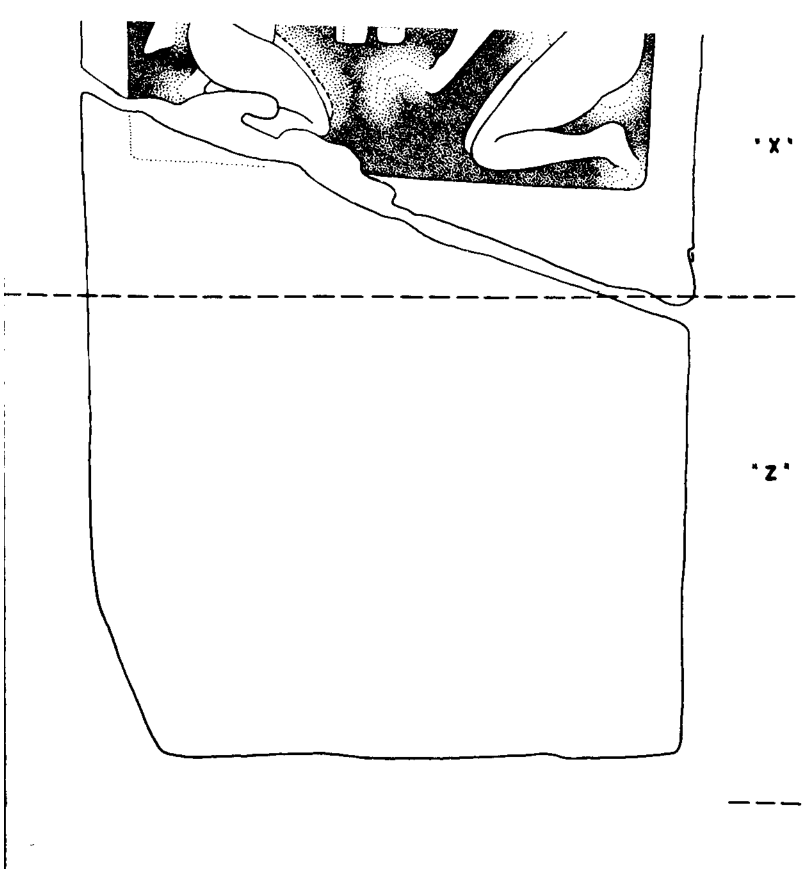
Fig. 65

Stela 6. Photographs of upper and lower portions of design in correct relationship.

Fig. 66



Stela 6. Design based on Fig. 65, other photographs and field drawing.



This page intentionally left blank

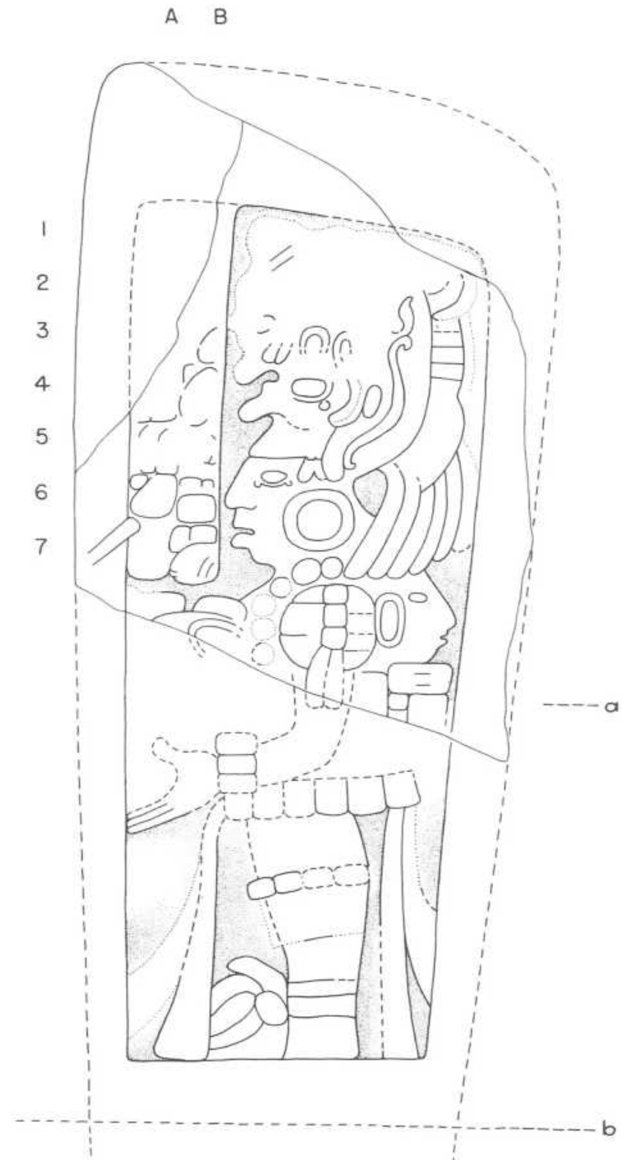


Fig. 69. Stela 10: drawing of design based on Figs. 67 and 68, other photographs, field sketches, and cast. Recording incomplete.

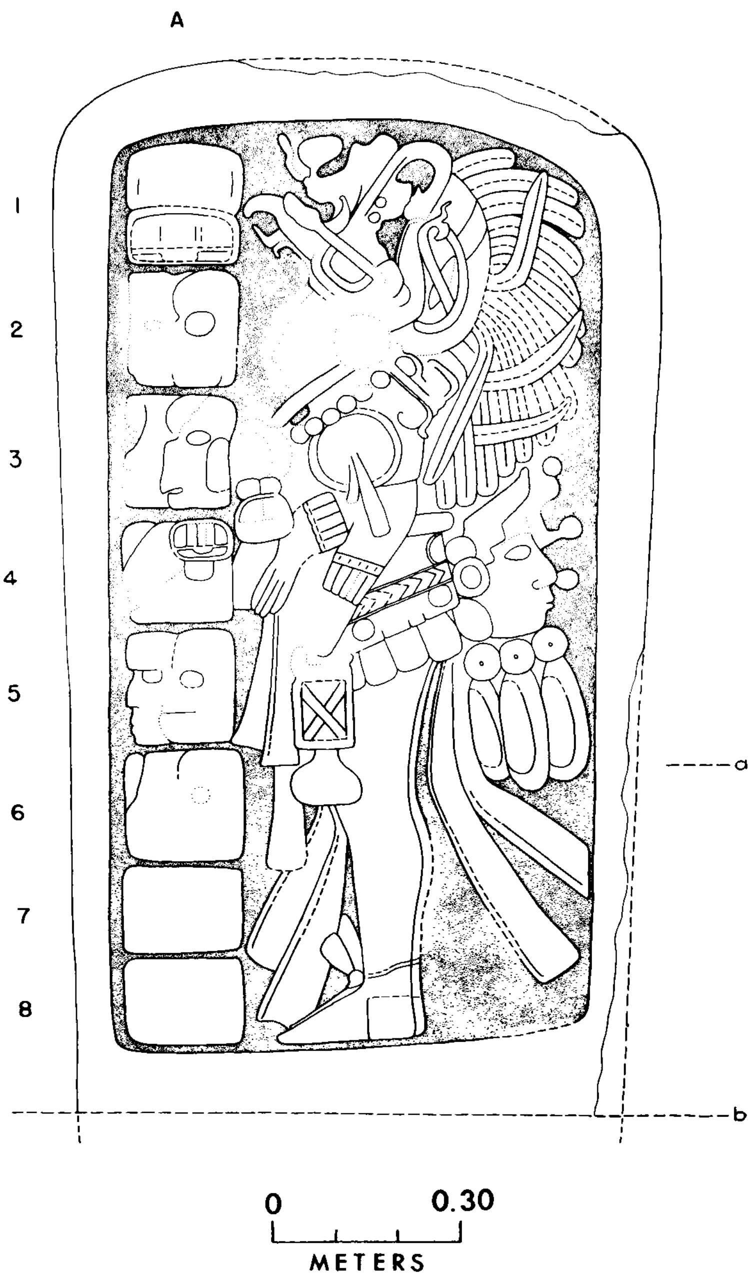
Fig. 67. Stela 10: photograph of design on front of Fragment 1 (main upper fragment), slightly foreshortened.

Fig. 68. Stela 10: photograph; as Fig. 67, with different lighting.

0 0.30
METERS

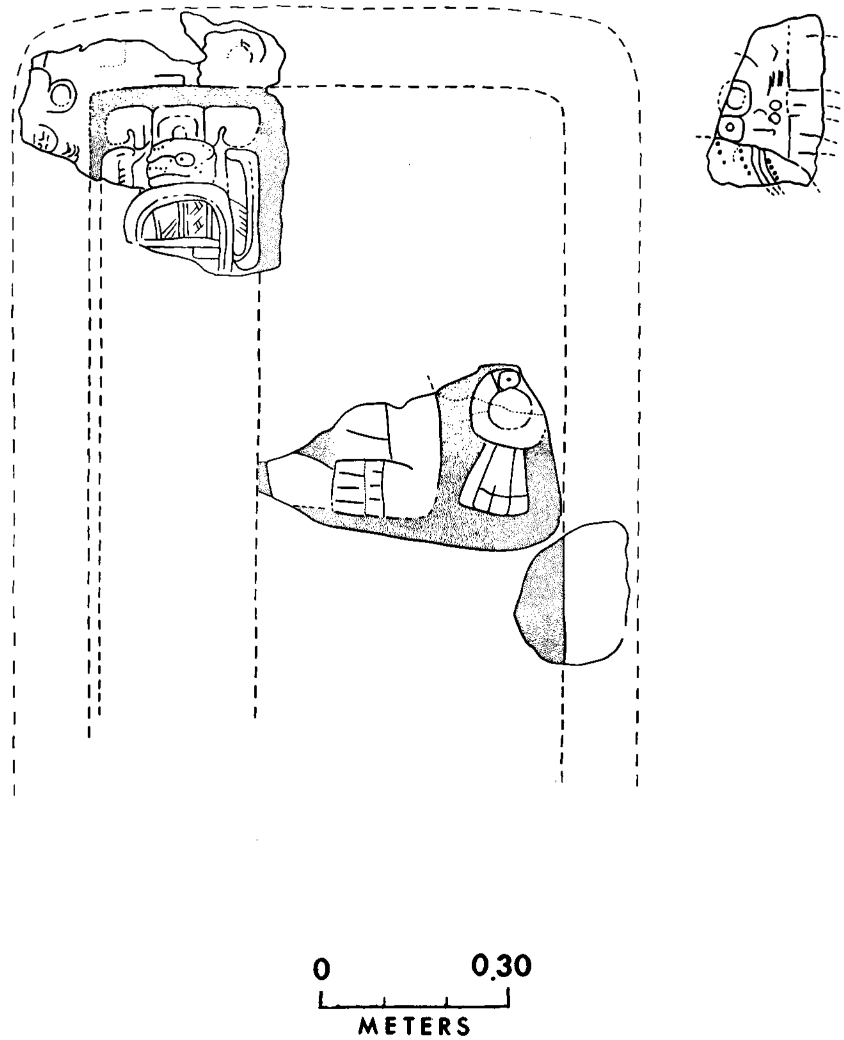
Fig. 70

Stela 9. Photograph of design on front, *in situ* and somewhat foreshortened.



Stela 9. Drawing of design, based on Fig. 70, other photographs, field drawing, and cast.

Fig. 72



Stone 1 and Stone Group 2. Drawings from photographs of casts. Fragments of Stone 1 fitted at upper left, others from Stone Group 2. Broken lines suggest possible reconstruction of "Stela X?" as source of fragments of both groups.

Pottery figurine head. Found near surface of plaza, between butt of Stela 6 and its altar. Now in Guatemala National Museum. Total height of fragment, 11.2 cm. Two small vertical slits on back of head. Probably moldmade. Weathered turquoise or blue paint on mask headdress, cheeks, and necklace.

TIKAL REPORT NO. 10

THE ABANDONMENT OF PRIMICIAS BY ITZA OF SAN JOSE, GUATEMALA, AND SOCOTZ, BRITISH HONDURAS

Ruben E. Reina

CONTENTS

Page

FOREWORD 217

THE HISTORICAL BACKGROUND 217

THE ABANDONMENT OF PRIMICIAS 221

REFERENCES 225

FOREWORD

This paper is a preliminary report of six weeks of field work sponsored by the Tikal Project of the University Museum, University of Pennsylvania, and conducted during the summer of 1958. I should like to express my appreciation to the Field Director of the project, Mr. Edwin M. Shook, for making the trip possible, and to Drs. Linton Satterthwaite and William R. Coe for suggestions and criticism of the first draft of this paper.

Further research will be conducted in 1960–61 in this area under the sponsorship of the National Science Foundation.

THE HISTORICAL BACKGROUND

Lying in the lowlands of Guatemala and British Honduras are two Indian communities which were the subjects of a short field study in the summer of 1958. The ancestors of the present-day inhabitants were people of obscure origin who lived among the Maya in Yucatan in Post-Classic times. In the late seventeenth century the Spaniards succeeded in stamping a large portion of their world view and traditions upon these people. Now these communities, which possess a mixed culture, once more are suffering the pangs of change.

It is known that the inhabitants of both San Jose and Socotz are culturally related to the Itza group and that they speak Yucatecan "of a somewhat purer and more archaic form than that spoken in seventeenth century Yucatan" (Thompson, 1951, p. 391). Before their appearance in the Peten they had settled in various areas of Yucatan. In the process they came into contact with other Maya-speaking groups and at times underwent forceful acculturation. Who these people were and where they came from before their appearance in the Yucatan Peninsula are still matters of speculation. Statements from early documents are the only source of data available until historical linguists complete the mapping of the linguistic past. Evidence of the alien origin of the Itza is found in the ancient Maya chronicles which describe the Itza as the "foreigners," "those who speak our language brokenly," and "people without fathers or mothers."(Tozzer, 1941, p. 20, ft. nt. 123). The explanations of these statements are that the Itza inhabited the southwestern part of the peninsula and spoke Chontal, which sounds like "broken Maya," or on the other hand, they were of non-Maya origin and in the acculturation process into Yucatecan Maya, they maintained a dialectical distinction. According to the *Popol Vuh* the Itza did not enjoy a good social reputation in Yucatan. This gives force to the argument that Itza were linguistic and cultural misfits in Yucatan. They were reported to be a "race of tricksters and rascals"; "they were vicious"; and "they promoted evil and war " (Goetz and Morley, 1950, p. 68). Socially, the Itza were treated as a minority group.

The Itza began to lose their foothold in Yucatan in the latter part of the twelfth century. The *Book of Chilam Balam of Chumayel* makes reference to the following event:

> "Then late in the Twelfth Century, Hunac Ceel, the ruler of Mayapan, organized a conspiracy against Chichen Itza...The consequences were far reaching... Not only was there a permanent readjustment of the political forces of northern Yucatan...it resulted in a migration of a considerable portion of the Itza nation to the distant region of Lake Peten in what is now the Republic of Guatemala " (Roys, 1933, p. 177).

In the same document there is reference to the rivalry which existed between the Itza and the Xiu in Yucatan. Both Itza and Xiu were of non-Maya origin, inhabiting the Yucatan Peninsula and, according to historical sources, both "were well mayaized in the centuries following their settlement in Yucatan" (Thompson, 1951, p. 389). As a result of intra-tribal warfare which broke out in the fifteenth century, the Xiu withdrew to Mani in Yucatan while most Itza, well settled in and around Chichen Itza, migrated toward the Peten, Guatemala (Redfield and Villa R., 1934, p. 19). This is the second recorded migration of Itza toward the Peten.

Those Itza unaffected by the conflicts at this time were evicted from Yucatan during either the conquest and colonization of Yucatan in 1517 or the "great Mayan revolt" of 1546–47. The dramatic nature of the revolt was described by Robert S. Chamberlain:

> "Pueblos lay deserted, their inhabitants were scattered, agriculture was ruined, and native life was totally disorganized. Large numbers of Indians left their homes permanently to migrate to other areas, as had happened during earlier phases of conquest. Some undoubtedly went to the distant and still free Peten Itza"(Chamberlain,1948, p.251).

The "lands of Peten" were the unclaimed land located southwest of the Cacicazgo of Chetumal (Villa R., 1945, p. 8). The Peten attracted, therefore, the Itza and others from the various Indian groups of Yucatan. Whether the Itza bypassed entirely the Tikal area is not yet known. They chose to occupy:

> "five small islands in Lakes Peten and Ekixil and the swampy parts to the west, of which Noh Peten ('Great Island') or Tayasal, site of the modern town of Flores, was the most important. On the surrounding mainland their territory extended eastward to that of the Mopan (also called the Aical), westward to the Cehach, and perhaps, with vague control, southward to the Rio de la Pasión" (Thompson, 1951, p. 390).

Thompson has suggested that the Itza had a mixed cultural background when they inhabited the area of Tayasal, although his limited ethnography of the Itza of Tayasal does not permit us to make specific statements regarding how Mexicanized they had been. Among some of the Mexican features mentioned by Thompson, are:

> "dual form of the chieftainship; developed ritualistic cannibalism; a tzompantli cult; perhaps killing the aged (if true); spread eagle position of sacrificial victims; and homosexuality. However, all of these could have been borrowed by a Mayan people ... On the other hand, the light complexion and, particularly, 'the very perfect stature' of the Itza definitely point to a non-Maya group ..." (Thompson, 1951, pp. 399–400).

The account of the conquest of the Itza province by the first conqueror in the Peten, Martin de Ursua (1697), gives the impression that he found concentrated on the lake a large and well-organized population estimated at two hundred houses. The Itza at first were able to resist the entrance of the Spanish troops under the leadership of Ahau Canek, the head chief, and his

cousin, Ah Kin Canek, the high priest. In the end, however, the Indians were subjugated and their leadership destroyed. The Spaniards conceived the Itza of Yucatan as "barbarious, ferocious, and cruel," and suggested that these characteristics had increased among the Itza of the Peten (Villagutierre, 1933, pp. 369–384). The conquerors reported that under Canek's regime many human sacrifices, both prisoners and Itza young people, were offered to their gods. The Spaniards felt highly justified in crushing the "uncivilized" traditions of the Itza. Ursua gave orders to his soldiers and to his lieutenant priest to visit all places of worship in Tayasal and destroy pagan idols. The report indicates that this was such an extensive task that it took constant work from eight in the morning until five in the afternoon.

The isolation of the Peten was not attractive to the Spaniards and because of the approaching rainy season they left the Itza. In later years Spanish colonists returned and founded the community of Peten Itza de los Remedios (known today as Flores). Political and religious officers were appointed to govern the Indians. In the years which followed, the isolation of the Peten attracted many Yucatecans escaping from the two political crises in the North: 1) the War of the Castes, 1847 to 1870 and 2) the Mexican Revolution of 1920–21. Within the memory of the people in San Jose is the vivid recollection of Mexicans and Yucatecans passing through San Jose and San Andres, and a number of families trace their descent to those people. This group adds further heterogeneity to the Peten Itza Lake area. The historical marginality of the area and the existence of a culture in the wilderness present an excellent opportunity for basic social research.

As in the case of most Highland Indians of Guatemala, the Itza fused sixteenth century Spanish patterns with those of their already mixed Indian background. Currently they are rapidly adding patterns of the twentieth century. An awareness of the world has increased in the last decade, aided by rapid and convenient air transportation to and from Guatemala City. If petroleum is found in the area, a booming economy will reach further into the rhythm of life of the Itza and of non-Indian Peteñeros. San Joseños and Socotzeños are aware of "progress" but their attitude toward it does not parallel Robert Redfield's findings in his study of Chan Kom between 1930 and 1947.

Beneath the layers of adopted Western European traits, there exists currently a solidified layer of early traditions which has persisted. For example, the colonial church of San Jose in the Peten, which was built in 1718, is furnished in the style of the Western European rural church with altars housing Spanish images. Yet on the left hand side of the main altar, are three human skulls without the lower jaw. Each is placed on a tin plate and is marked by a small sign made of wax placed on the forehead. Informants can remember that for sixty-five years the same three skulls have been there, and each year one of the skulls has been removed from the altar on the night of November 1st. A young person is chosen by the elders of the village to take the skull to families who have requested the honor of offering ceremonial food to it. The skull is placed in the center of a table and is surrounded by abundant food and *atole* made of black corn. Other tables are set for the local guests though no one partakes of the skull's food. The skull visits selected families throughout the night, and it is returned to the church in the early morning for a Mass conducted by the priest of Flores. It was suggested by a member of the community of San Jose that the skulls belong to three Indian Priostes (stewards of a brotherhood) who were very powerful. When they died the community found itself without continuity, and it decided to keep them on the altar. The current Catholic priest has suggested a proper burial for the three skulls, but people have given the priest the choice of leaving the skulls where they are or of leaving

town himself. These skulls are ceremonial objects symbolizing the importance of ancestry. It is significant to point out that this behavior toward the skulls may be in part the continuity of the *tzompantli* rite, of Mexican origin, when heads were placed on exhibit on stakes: "A custom reminiscent of the tzompantli rite obtained among the Itza, for the heads of the members of a Spanish party massacred by the Itza were placed on a row of stakes on top of a small mound of a prominent position" (Thompson, 1951, p. 394).

Peteñeros readily point to these old ways of the Indians as traditions without meaning, *tradiciones mudas*. However, it is obvious that values, orientation to the universe, and the analysis of cause and effect in life and between life and death are not held in such a vacuum. The local folklore, with stories of *duendes* (Thompson, 1930, p. 107); the *x-tabay* (ibid., p. 110); the *zizimit* monster of Mexican origin (Coe and Coe, 1951, p. 160); the ceremony of the *ceiba*, or in Maya, *yaxche* (Thompson, 1930, p. 111; Redfield, pp. 242–243); *mal vientos* (evil winds); *sustos* (fright); *mal de ojos* (evil eyes); and the complex of *secretos* or formulas for the prevention and curing of illnesses are indeed early patterns of various origins but remain, nevertheless, strongly webbed today into the daily life of the peoples of San Jose and Socotz. Crises in life, such as failure of crops, miscarriages, death, are met today with techniques of the past. Type of houses, *milpa* practices and the associated rituals at planting time and harvesting, pattern of land rotation, the making of dug-out canoes, the covered pit oven for ceremonial cooking, and pottery making without the potter's wheel are among other survivals.

Peteñeros of Flores, frequently of Indian extraction, are quick to point out progress which has occurred within their lifetime. The following are examples: less elaboration and enthusiasm for their fiestas; acceptance of schools, with a rapid increase in literacy; the obvious trend to relegate their native language to a secondary level while Spanish becomes the preferred language; the use of European-style clothing, shoes, permanent waves, and cosmetics; and even cases of cross-marriages. This level of changes and additions is a matter of pride to those people identified with the "white" population. They perceive these changes as symbols of progress. The physical appearance of the San Joseños is so similar to that of the Peteñero group that the 1950 Guatemala census reported a population of 465 Ladinos and 11 Indians for San Jose. A close look at the community revealed, however, that a reverse in ratio would be more accurate, following the definition applied to people in the remainder of Guatemala. San Joseños proudly point out that they are all "Indians, Peteñeros, and Mayeros."

A large portion of the San Jose population migrated eastward eight-five years ago. According to informants, the population in San Jose was cruelly used as *corredor* (runners). Appointed officials used them as free laborers to transport merchandise from the border of British Honduras, and they were sent to other villages with official messages. The oppression stimulated a mass migration. Some families left at first for the nearby areas of the Peten, halfway between the lake of Flores and British Honduras (Tikal, Yaxha); but the places were abandoned because of a "plague" of mosquitos, bats, and rats which damaged their *milpa*. The last stop was Socotz. This village has today a population of four hundred and, comparatively speaking, the cultural complexion or style of life seems more Indian than that found in San Jose. Thompson (1930, p. 6) says it is known that "the Mayas of Socotz and other Indian villages in the neighborhood are immigrants from the area around Flores, and they speak the same dialect as that spoken at San Jose on the shores of Lake Peten–Itza, which in turn is practically the same as that spoken in Yucatan."

Considering the oppression and migrations of the Itza, it is understandable why San Joseños were more amenable to additions or changes relative to their appearance. Socotzeños

sought to preserve their identity by guarding the old dress style, housing, gestures, and other major features. The most readily available explanation is that the Socotzeños are surrounded by Caribbean English-speaking negroes at Cayo, the Spanish Peteñeros of Benque Viejó,[1] the Black Caribs, a Carib-speaking group, and the Mopan-speaking people of San Antonio village. This heterogeneous setting stands in contrast to the isolated and more homogeneous social context of San Jose. The comparative analysis of San Jose and Socotz supports the hypothesis that as cultural plurality increases, tensions are built up and willingness for assimilation decreases.

THE ABANDONMENT OF PRIMICIAS

The Socotzeños identify with their Indian traditions first, Spanish Peteñero next, and British last. The new school under the Catholic Church has a full-time teacher—a Black Carib from the southern coast of British Honduras—whose primary concern has been to enforce the learning of English in the community. Consequently, three languages are known in part by the younger individuals. Old people force everyone to speak "*la lengua mayera*" in the household.[2] Spanish is used in sporadic interaction with the Spanish communities of the area, and a knowledge of English is necessary for some members of the village who deal with government officials.

There is no doubt that Socotzeños are slowly changing. Notably, certain ceremonies of their early culture which were a means of self-preservation have been discarded. Examples occurred in both San Jose in the thirties, and Socotz in 1942. The evidence in the case of the Socotzeños is a public ritual, the *primicia*, a formalized expression of gratitude to the deities. There were a number of *primicias* conducted at different points in life.[3] My comments pertain only to an important *primicia* sponsored by an extended family in Socotz which was experiencing a critical illness. The family believed that during the conduct of a *primicia* the deities would be overwhelmed by the quantity of offerings and the emotional intensity of participants and would cure the ill person. The deities, in full control of the forces of the universe, demanded the offering of ceremonial food and orations, but most of all they required the highest mental concentration in group units, utmost solemnity and propriety throughout the twenty-four hour ceremony conducted by the Maya wise man, the ah-men. The ah-men first would predict a favorable day, frequently Friday (no specific reference to the Maya calendar has yet been found). The preparation of the *tuti-uah*, a bread-like tortilla, was made over leaves of *muxan* (banana leaves). A layer of ground corn in the form of one tortilla was followed by a layer of frijoles and a third layer of *ayote* which is prepared from ground squash seed (*zicil*). The main bread, *tuti-uah*, was formed by thirteen layers of tortillas, frijoles, and *ayote*, and it was marked with thirteen holes along the borders of the upper layer (they

1 In Benque Viejó there are many early Maya who in cross-marriage with Spanish people settled here, and the generation to follow has adopted the Spanish style of living.

2 Both groups, and several informants, claimed identification with the Maya and would even argue that they are the true Maya. A few informants in San Jose stated that they are "Yucatecans," while Socotzeños will state that they are "*Mayeros puros*."

3 Redfield and Villa R. (1934, Ch. VIII) describe ceremonies of offerings with a pattern similar to that of *Primicias*. Villa R. (1945) has, under the "Agricultural Ceremonies," section on the *primicia* (p. 115).

were the eyes of the bread– *u ich uah*). The rest of the *tuti-uah* used in the ritual were reduced progressively by one layer. The *tuti-uah* were then wrapped in leaves of *muxan* and cooked in the traditional covered pit oven. The wrapped *tuti-uah* were covered with guano (*Sabol mexicana*) and placed on top of the hot stones. The pit was ready at 8:00 p. m. The *tuti-uah* were placed inside and were not removed until 11:30 p. m.

In the meantime the "owner" of the *primicia* and his relatives were each prepared by the *ah-men*, receiving symbolic lashes on their bodies to remove *mal vientos*. These evil spirits were said to interfere with the success of the *primicia*.

A large platform (*tapesco*) was built by the assistants and covered with leaves of *xoch* (*Ricimus communis*). At 10:00 p. m., the *posole*, a thick mixture made of black corn and white honey, was placed on the *tapesco*. The essence of *posole* called the attention of the spirit. Afterward the *ah-men* offered the ceremonial food to the deities. The tortillas were removed from the pit and the one with thirteen layers was placed in the center of the *tapesco* accompanied by a chicken which had been drowned in rum and had the feathers and feet removed. An important prerequisite was fresh food for the *primicia*. Four bottles of rum (*aguardiente*) were tied up at the four corners of the platform as a substitute for a liquor made from the bark of a tree found only in the Mexican land, the *balche*.[1] Pure tobacco was placed with the rum, together with four small calabashes containing *posole*.

The ah-men walked alone toward the platform to call high spirits from *el mundo*, the world. In a loud voice he invoked *ah-balamob* (deities who are protectors of earthly things) and addressed himself to the winds from the four corners of the world: *lakin-ik*, the east; *chikin-ik*, the west; *xaman-ik*, the north; *nohol-ik*, the south. The names of specific *balamob* (Lords Balam) were mentioned in the orations, such as *tat-ah-chaac*, the father thunder; *mozon-ik*, the whirlwind; *canan-canob*, owner of heavens; *canan-kaaxob*, owner of the forests; *canan-kol*, owner of the milpas; *canan-beob*, owner of the paths; and *canan-ha*, owner of the waters. The calling continued in a very loud voice throughout the night, alternating with orations. The *ah-men's* orations were known only to him, and his style seemed to be parallel to that of "shamans," a high-pitched falsetto and rapid speech. He terminated his oration with a Christian benediction.

The male guests remained inside the household, smoking and drinking ceremonially, keeping silence and awaiting the *ah-men's* conclusion, which came before sunrise. A special call by the priest indicated that four men were to assist him on the platform to spread food to the four corners of the world. Left-over food was removed and the platform dismantled. This act was followed by a distribution of food among the guests. The *ah-men* returned to the guests and, using leaves (*siib-che*) gave lashes to each of the guests to remove any "bad winds" introduced by the deities into their bodies. In this case he sadly announced that the food and prayers were not accepted by the deities.[2]

[1] "Balche, the native wine is made by steeping the bark of the balche tree (*lonchocarpus Longictylus*) in a mixture of fermenting honey and water." Largely used by Lacandones (Philip and Mary Baer, 1950).

[2] The sequence of this ritual is parallel to the Chan Kom "dinner-of-the-milpa" described by Redfield and Villa R., pp. 112, 134; also Villa R., 1941, pp. 113–124; the names of deities correspond.

In the past, reports Thompson, (1930, p. 117), "if at the end of a fixed period the *posole* had turned sour, that was a sign that the lords of the forest were not satisfied for some reason or other and had refused to receive the *primicia*. In that case the *primicia* would be repeated on some other occasion." According to present-day informants, the ritual cannot be repeated when the guests make errors or their interpersonal relations have been undesirable. Thus, the participants are under great stress from the time the ritual is publicly announced. They have strict rules of behavior to follow. Moderation, sexual restrictions, and the achievement of uniform feeling (faith) are among the highest requirements. During the day of the ritual the *ah-men* supervises the preparation of food because he must be certain that food has not been in contact with dirt. Socially there must be no personal dissensions nor individual antagonism. The situation results in a mental paralysis or neutrality, through intense concentration.

In 1942 Socotzeños believed that errors would not be tolerated by the deities. A record had been accumulated of many episodes demonstrating that careless persons had gone ahead with the *primicias* and the deities had punished them with death. In the case previously described the failure took place in the following manner. During the preparation of the food the wife of the ill person became nervous and complained that she was not rich enough to offer so much food and share the rest with relatives. The *ah-men* learned of this complaint but proceeded with the *primicia*. After the night-long ritual the *ah-men* announced that the food presented to the spirits could be collected from the four corners of the platform. The four helpers were perplexed and astonished to find the perfectly good food "totally spoiled" within only a few hours. The *ah-men* then realized that the deities had rejected the offering and there was much confusion and panic. Before another *primicia* could be planned, the sick man died, and he was soon followed in death by his wife. In the course of a short period of time a son died. The final consequence was the death of the *ah-men*, which was interpreted by the Socotzeños as his punishment for carrying on a ritual, knowing the owner of a *primicia* had failed the deities at the outset.

This case offered sufficient evidence to assure people of severe punishment for someone who does not know how to comply correctly with traditional dicta. The participants, and even the *ah-men* who tries to free someone who is not "devout and sincere," must pay with their own lives. This much was added to the values related to *primicia* and the uniformity of behavior and perfectionism in the ritual have become overemphasized inasmuch as the ceremony cannot be repeated for correction.

Currently, both Socotzeños and San Joseños conceive the *primicia* as an impossible task for human beings to handle, The informant stated that the *primicias* with *tuti-uah* are feared today, "*le agarramos miedo*." The people of Socotz can describe the *primicias* with all the details, but they very clearly state that they are no longer offering them. Secretly, the "dinner to the milpas" is offered by individuals alone without the *ah-men's* help. This appears to be the only vestige of a public *primicia* which remains, but even on this occasion people have fears. Everything must be in proper order, an *oráculo* must be consulted; and then only when the social relations among the members of the household are peaceful does the person feel secure. The big *primicia*, however, has been purposely cast off. The people's reasoning behind the abandonment is as simple as this:

> "It is preferable to take a minor damage, one death, rather than expose ourselves to much danger because of failure of participants to observe the things prescribed in the ritual. The *ah-men*, who are few nowadays, are afraid to undertake the responsibility of the *primicias*, and we cannot afford to lose them."

Here is a remarkable example of culture change springing up from within the system. San Joseños, who are under no great pressure for change, agreed that the abandonment is logical, *está bien* in terms of the nature or essence of the ritual. Whether the ritual in itself has physically changed is not as important as is the fact that the conceptualization of the ritual has moved beyond practicability. The *primicia* complex is currently conceived as unmanageable. Functionally, it has reached in its own momentum a point comparable to the phenomenon of dimishing returns in economics. The margin for behavioral error appears so high that it seems logical to literally abandon a cultural pattern which has the greatest degree of risk.[1]

It is a significant case of culture dynamics when thought of in terms of this people's history: 1) Itza in origin; 2) culturally Maya but conserving Mexican traits; 3) molded by Spaniards late in the seventeenth century; 4) ex-residents of Guatemala; and 5) currently under a British colonial system. But, in spite of all, they have managed to maintain their affiliation with the Indian traditions of the broader area, displaying a high degree of cultural stability; by the same token Socotzeños and San Joseños have been able to make significant changes on their own initiative. In spite of events in history these people continue to be in control of their tradition; and of great significance is the fact that they continue their own cultural creation. It is suggested here that when a cultural pattern becomes unwieldy, in this instance making matters impractical in Maya context, the pattern can be discarded. In Socotz and San Jose the change by abandonment finds its major explanation along purely cultural lines.

Benson Saler, a graduate student at the University of Pennsylvania, who recently returned from one year of field work among Quiche Indians in El Palmar, (Boca Costa, Guatemala) reports several incidents parallel to the Socotz case. The drama of such cases reveals an important pattern of behavior for Mesoamerica, and it may point out something significant for people of Maya extraction. It manifests a form of cultural change today, and it also suggests problems relative to changes in prehistoric times. Further research in the area may bring forth more knowledge about historical processes and problems.

[1] It is interesting to note the fact that there is a striking parallel between this case and the mechanism pattern of friendship among highland Maya. Both seem to reach extremes; a moment of high intensity is followed by the abandonment or rejection of a cultural pattern (Reina, 159, pp. 44–50).

REFERENCES

Baer, Philip and Mary

1950 Lacandon Ethnographic Materials. *Microfilm* 34, *University of Chicago*. Chicago.

Chamberlain, R. S.

1948 The Conquest and Colonization of Yucatan. *Carnegie Institution of Washington, Publication* 582. Washington.

Coe, W. R. and M. D.

1951 Ethnological Material from British Honduras. *Notes on Middle American Archaeology and Ethnology, Carnegie Institution of Washington,* Vol. 4, No. 104. Cambridge.

Goetz, D. and S. G. Morley

1950 Popul Vuh, the Sacred Book of the Ancient Quiche Maya (English version from the Spanish translation). *University of Oklahoma*. Norman.

Redfield, R. and Alfonso Villa R.

1934 Chan Kom, a Maya Village. *Carnegie Institution of Washington, Publication* 448. Washington.

1936 The Coati and the Ceiba. *Maya Research,* 3:231–243. Tulane University. New Orleans.

Reina, R. E.

1959 Two Patterns of Friendship in a Guatemalan Community. *American Anthropologist,* Vol. 61, No. 1. Menasha.

Roys, R. L.

1933 The Book of Chilam Balam of Chumayel. *Carnegie Institution of Washington, Publication* 438. Washington.

Thompson, J. E.

1930 Ethnology of the Mayas of Southern and Central British Honduras. *Field Museum of Natural History, Publication* 274, Vol. XVII, No. 2. Chicago.

1951 The Itza of Tayasal, Peten. *Homenaje al Doctor Alfonso Caso.* Mexico.

Tozzer, A. M.

1941 Landas Relacion de las Cosas de Yucatan. *Peabody Museum, Harvard,* Vol. XVIII. Cambridge.

Villa R., Alfonso

1941 Dioses y Espiritus Paganos de los Mayas de Quintana Roo. *Los Mayas Antiquos.* Mexico.

1945 The Maya of East Central Quintana Roo. *Carnegie Institution of Washington, Publication* 559. Washington.

Villagutierre Soto-Mayor, J. de

1933 Historia de la Conquista de la Provincia de el Itza. *Tipografia Nacional.* Guatemala.

MUSEUM MONOGRAPHS

TIKAL REPORT NO. 11

MAP OF THE RUINS OF TIKAL, EL PETEN, GUATEMALA

Robert F. Carr and James E. Hazard

PUBLISHED BY
THE UNIVERSITY MUSEUM
UNIVERSITY OF PENNSYLVANIA
PHILADELPHIA
1961

PREFACE

Tikal, the ruins of the largest ceremonial "city" of the Maya civilization, is located in the northeastern sector of the Department of Peten, Guatemala, about forty-three kilometers in a straight line northeast of Flores, the modern departmental capital. The extent of the ancient "city" of Tikal is not known certainly even today, after mapping the central area of sixteen square kilometers and exploring beyond the surveyed zone. This great Maya center, abandoned for nearly a millennium, lies virtually hidden beneath the dense canopy of a tropical rain-forest. The mapping of its crumbling and buried remains–houses, temples, palaces, plazas, ballcourts, reservoirs, chultuns, quarries, stone monuments–has been a formidable undertaking. The task was successfully accomplished in four field seasons, from February 1957 to September 1960, by a number of dedicated young men of the University Museum's Tikal staff.

The ruins of Tikal were first mapped by A. P. Maudslay during his brief visits to the site in 1881 and 1882. Maudslay (1889–1902, Pl. 67, Vol.III) published a 'Rough Plan of the Ruins of Tikal,' as he modestly labelled his pioneer effort, in his monumental work on Maya archaeology. The map, a creditable one under the circumstances, quite accurately shows the location of Tikal's five Great Temples and the structures immediately surrounding the Great Plaza.

The second and presumably more comprehensive map of the site was made by Teobert Maler between August 8 and November 15, 1904. Maler, however, owing to an altercation with the sponsoring institution, the Peabody Museum of Archaeology and Ethnology, Harvard University, refused to submit his Tikal map with the photographs and field report of the 1904 expedition. Maler's map of Tikal has never been published, and its whereabouts, if still in existence, are unknown.

The Peabody Museum sent another expedition to Tikal in 1910 under A. M. Tozzer, who was assisted in the field by R. E. Merwin. Tozzer and Merwin sketch-mapped the central area of the Tikal ruins during their 23-day stay at the site. Their map (Tozzer, 1911, Pl. 29) has served as the basic one for Tikal since 1911 until the completion of the present University Museum map.

S. G. Morley (1937–1938, Vol.I, pp. 267–268 and Pl. 188), during four brief visits to Tikal in 1914, 1921, 1922, and 1928, obtained information which permitted the correction of certain details on the Tozzer-Merwin map, and the writer added his 1937 discoveries to the same base map (Morley, 1938, Vol. I, pp. 278–279 and Fig. 14). Subsequently, the base map underwent further addition and correction (Shook, 1951, Fig. 1) following the discovery, in 1951, of the Temple of the Inscriptions (Str. 6F-27) and the great causeway (Mendez) connecting this newly-discovered temple with the central area of Tikal.

One of the first major archaeological objectives of the University Museum's Tikal Project was a new survey of Tikal. The writer, in 1956, made a general reconnaissance for several kilometers north, south, east, and west from the known central ruins attempting to define

the limits of the ancient city. No recognizable limits were observed. Ruins of house sites and small groups of vaulted temple and palace buildings continued as far as the search extended in each direction from the central area. This led to the arbitrary selection for detailed mapping of a square area measuring two kilometers north, south, east, and west from the Great Plaza of Tikal, or a total of sixteen square kilometers.

The following report by the principal surveyors, Robert F. Carr and James E. Hazard, describes the strenuous task of field mapping and the problems encountered in accurately depicting the archaeological remains where the natural elements have exerted their destructive force for a thousand years.

EDWIN M. SHOOK
Field Director, Tikal Project

INTRODUCTION

The completion of a basic topographic map of what might be called Greater Tikal has been one of the major tasks of the Tikal Project since the beginning of the mapping in February, 1957. Originally, a detailed map of sixteen square kilometers was planned (see Tikal Report, No. 1, p. 11) at a scale of 1:2000. However, this plan was modified somewhat, and the central nine square kilometers were accurately mapped at large scale, while the surrounding squares, 0.5 kilometer wide, totaling seven square kilometers, were mapped at a smaller scale by means of aerial photographs and Brunton compass traverses.

The immediate objective has been to provide a complete and accurate map as soon as possible from the surface information now available. In such a densely forested area as Tikal, a good base map is particularly necessary for an intelligent planning of long range archaeological research, and the map has already been invaluable for this, as well as for laying out roads, trails, and camp facilities. The map shows only the surviving surface remains of the ancient site. No structures concealed by later construction are shown on the map, even where they have been exposed by recent excavations of the Tikal Project. As excavation proceeds, many details of structure plans will be learned which were unknown or could only be surmised when the site map was surveyed. Architectural plans of ceremonial groups, plazas, structures, and so on, exposed by excavation, will be shown on larger scale drawings in the reports on these features.

The Tikal Project is greatly indebted to J. O. Kilmartin, M. R. Jones, and C. B. Brady of the U. S. Geological Survey, Mr. Kilmartin and Mr. Jones for their invaluable aid throughout the mapping program, Mr. Brady for the preparation of the tinal map for publication. Morris R. Jones spent a month in Tikal early in the 1957 season initiating the mapping program and training J. E. Hazard and W. R. Coe to carry on the survey. The work during the remainder of the 1957 field season was largely done by Hazard. In 1958 he was aided by Richard S. Wurman and Newton Levine. In 1959 Robert F. Carr took over the mapping from Hazard, and this final season, 1960, there were again three mapping teams, as Eduardo Martinez E. and Hans M. Gregersen worked along with Carr.

LOCATION AND ELEVATION OF SITE

Mr. W. A. Love (Fisk, 1927, pp. 186–188, Table 43, p. 259) of the Carnegie Institution of Washington established the geographic coordinates of Tikal on March 18, 1923. He reported that his observations were made on top and at the southwest corner of the pyramid of Temple I, and he obtained Latitude 17° 13.3' N. and Longitude 89°38.5' W. More recently, the Petty Geophysical Company mapped the area for the Esso Oil Corporation, whose concession includes Tikal. They placed a permanent "Shoran" station in the camp near our datum bench mark (see Sq. 4F, north of the reservoir), and determined its position to be 17°13'27.0" N. by 89°36'47.7" W. Using Love's Temple I determinations as a point of departure, now that the area is accurately mapped, we obtain for this same Shoran station a latitude of 17°13.5' N. and a longitude of 89°37.9' W. –a remarkably close agreement with the Petty Company figures. (The difference in longitude of 1.1 minutes is equal to about 2 km.)

Elsewhere, Ricketson (1928, p. 434), who accompanied Love on the 1923 expedition, reports the elevation of Tikal as 922 ft. (281m.) above sea level. An aneroid barometer and boiling point apparatus were used for this altitude determination. Unfortunately, today we are uncertain whether the elevation was taken at the same station on top of the Temple I pyramid, on the level of the Great Plaza, or at some other nearby location. The Petty Geophysical Company map, mentioned above, gives a very approximate elevation of 265m. for the area around Temple I. Since the exact location of Love's altitude station could not be ascertained, we began by arbitrarily selecting a position for a bench mark in a considerably lower area at the University Museum camp. We assumed an elevation of 200m. above sea level for this bench mark, and this has served as datum for the Tikal Map. Accurate leveling from our assumed datum subsequently established the general elevation of 251 m. for the Great Plaza, reasonably close to earlier approximations. The datum bench mark designated "Station Kitchen" consists of a long, brassheaded, steel stake set in concrete. It was placed 2.3m. from the most northern corner of the building which then served as staff kitchen, and in line with the northeast end of the building.

Early in February of 1957, prior to beginning actual control and plane table surveys of the ruins, a Brunton compass reconnaissance traverse was run over the major existing trails through the site. The data thus collected, together with information available from earlier partial surveys, provided a basis for decisions as to scale, contour interval, grid layout, extent of large-scale map coverage, and other details of cartographic representation. Because of the amount of relief present and the related importance of the relief to the overall plan, a contour interval of one meter was chosen for maximum topographic detail.

MAP SCALE

In deciding on a scale, the size of our plane-table boards, minimum amount of detail desired, final desirable size of the map, and the capability of the telescopic alidade were all considerations. The scale of 1:2000 allowed us to plot one square kilometer on each individual plane-table sheet, but graphic representation at this small scale proved to be difficult for ruins such as those around the Great Plaza, where structures are crowded close together and considerable standing masonry exists. However, even at 1:2000, the finished 9 sq. km. requires several square meters of paper. A map at a larger scale would have been even more unwieldy to handle and publish. Thus the scale chosen is a compromise between the desire to show as much significant detail as possible and the practical considerations of making and publishing the map.

Practical considerations of publishing and handling also dictated the decision to publish a series of sheets, each covering 1 sq. km., rather than one huge sheet. To give an overall picture of the site, including the outer squares mapped by reconnaissance methods,we later decided to publish an additional, simplified sheet covering the entire 16 sq. km. at a reduced scale. The small-scale sheet was drawn by Gregersen, who is also responsible for almost all of the reconnaissance mapping.

ORIENTATION

In view of the relatively small area of the total survey, a plain grid was used to frame squares representing 500m. on a side, four of which were included on each plane-table sheet. The grid was oriented on magnetic north rather than true north, the orthodox positioning, for two reasons, both based on the fact that orientation of the structures coincides more closely with magnetic north than with true north. Orienting the grid network as we did enabled us to

position grid lines clear of the higher ruins, both to simplify the indexing of structures and to facilitate traversing grid lines, which at the outset was considered a logical approach to the field surveying. Thus the actual alignment of the grid is with the compass north of a K and E alidade, T-1043, the mapping instrument used in the first season's work. This grid azimuth is marked with two permanent stations, brass-headed steel stakes set in concrete, against which compasses used for any future mapping may be calibrated. The southernmost station is on the north side of the camp laboratory building (Square 4F, 255 m. S. and 355 m. E.), 7.75 m. from the NW corner and 8.85 m. from the NE corner. The other station is approximately 124 m. due north of the first. On August 1, 1960, Carr determined true north from Polaris observation. The grid north of the map was found to be 5°59' E. of true north, slightly less than the calculated magnetic declination of 6°45' for 1957.

FIELD PROCEDURE

The telescopic alidade and plane table were used throughout, both for the control traverses and the mapping of details. At times the transit was used to supplement this equipment, in particular to run differential-elevation traverses over rough terrain, and where the limited angle of elevation of the alidade made it inadequate for very steep shots. Stadia distances were used throughout, except for the primary control, which was steel-taped. Traversing along the grid lines proved to be prohibitively difficult and the control traverses were actually run in irregular loops, taking advantage of existing roads and trails, and eventually spreading out in a net over the entire mapped site. The areas enclosed by these loops were cut up by subsidiary traverses, and details filled in. Bench marks were set at important points along the traverses, often, however, on the basis of utility foı future excavations, rather than mapping utility. Thus, the heaviest concentration of bench marks is in the Great Plaza area.

Ordinary ruins were mapped without triangulation, but with enough fixed points for accurate plotting at the map scale. At least two points were sighted on each mound, however small, unless it was a completely featureless lump without discernible orientation. Since corners of the average small mound were usually quite indistinguishable, the usual mapping method was to sight and plot the centers of the two ends on top for an accurate orientation, and then to measure the width directly. Larger, more complicated, or better preserved ruins were surveyed in more detail, often by plotting each upper and lower corner separately, or, on the causeways, by plotting many points, both on top and at the foot of the parapet mounds. Many more direct measurements were also used, especially for very complicated ruins, or standing structures.

Plastic "Mylar" sheets were used for the final drafted sheets as well as in the field. The dimensional stability of this material through extreme humidity changes made it possible to work during much of the rainy season.

The rather slow progress of the mapping was due to the great accuracy and detail desired, and to the physical difficulties of the area. We attempted to map all visible culture features, and all significant topographical detail. The vegetation is dense, and sight lines had to be cut for every observation. Very often only short sights could be used, or a sight line had to be changed to avoid the thick trunk of a towering tree. The terrain looks deceptively level from the air. Although there are no great elevations, the ground is undulating, and in many places sharply broken. Generally, two or three men were required to work along with each topographer, one as rod man, and one or two more to cut sight lines.

STANDARDS OF REPRESENTATION

Graphic representation of the ruins in plan presents many problems. It is difficult to set hard and fast standards, and inconsistencies cannot be entirely avoided. The range of structural forms to be represented on the map extends from barely discernible elevations to enormous pyramids. The problem of representation is further complicated by the great range in the present condition of the ruins: most mounds very much weathered and rounded down, but many others showing a considerable amount of cut stone in the debris, some with traces of standing walls, and even intact building—in fact, structures in all stages of ruin or preservation. The reasons for the different conditions of preservation are not all known. Some probably are relative age, type of building, quality of construction, and pure chance—whether one or a succession of giant forest trees grew upon, uprooted from, or fell across the structure. At any rate, in representing the ruins we generally followed the example of the Piedras Negras map (Parris and Proskouriakoff in Satterthwaite, 1943), in that the shapes of the ruins are stylized, but at the same time pictorially presented as they actually appear, and not merely as symbols. All artificial mounds with no standing masonry are stylized into geometric shapes which are represented in plan view by a series of straight lines.

An exception to this is a construction with definite evidence of rounded corners (e. g., the base of the North Acropolis). These stylized mounds are more than sketches: the orientation, configuration, and relative height of even the lowest mounds are shown as accurately as can be determined from the debris. The representation of height is based on the idea that the sides of the simplest form of mound can generally be considered to have a roughly constant slope. This means that in plan view the distance between the lines representing the side slopes can be used as an indication of the height of the mound (see Fig. 1). There are at least two reasons, however, why this does not always hold true. Many structures appear to have had frontal platforms or broad stairways in front; this leaves a mound with a very gentle slope on the front side, compared to the back (e. g., Strs. 4B-25 and 27, Str. 3E-59). Other structures have not reached such an advanced state of ruin as to slump completely; these conserve the back side very close to the vertical (e. g., Str. 3D-112, Str. 6D-42).

Although it is not possible, of course, to indicate all minor irregularities of debris contour, many irregularities are shown where they appeared significant to the mapper, and often give clues to the original building plan. For example, the pattern of peaks and depressions on top of a mound seems usually to indicate a ruined vaulted structure—the depressions corresponding to doorways, which collapse first, or to separate rooms; the high points to the remains of transverse walls (e. g., Str. 4E-16). Of course, many other vaulted structures have reached such an advanced state of ruin that they are now rather even, level mounds.

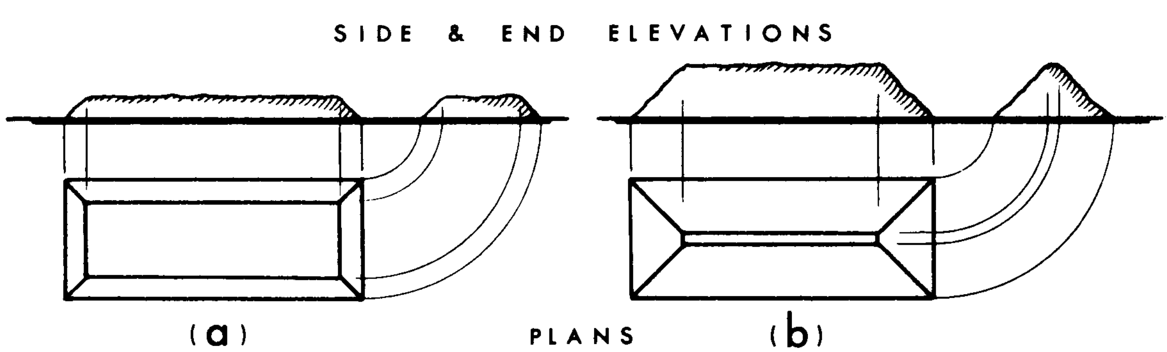


Fig. 1. Stylized Mound

Mapping structures with standing masonry naturally presents different problems. The map scale of 1:2000 is too small to draw accurate interior plans of the many very complex standing structures at Tikal, and thus interior plans were not attempted. However, every effort was made to show an accurate exterior wall plan. Where a vaulted structure still stands, it is indicated on the map in solid outline with cross-hatched interior. There is no attempt to show doors or other openings, but wall insets are shown where clearly visible. Buildings thus indicated on the map actually range from intact structures, such as the great temples, to structures which retain only one major standing wall (e. g., Str. 5E-38 and Str. 5D-105), or even those where almost all exterior wall surfaces have crumbled, but where vaulted rooms still stand within. Wherever actual building outlines could only be approximately determined, broken lines were used (e. g., Str. 5D-54/57). Where not enough standing masonry remains to justify the hatched-in ground plan, a composite indication was sometimes used—standing walls are shown as solid double lines, while sections that are merely heaps of rubble are represented by the stylized mound form (e. g., Str. 5D-58). The broken line again indicates probable building outline. It must be understood that the cross-hatched plan does not indicate the importance of a structure; only that its wall plan is determinable by inspection. The immediate visual importance of the cross-hatched structures on the printed map, however, does in a sense directly reflect the actual visual importance of these structures as they exist today. A small standing structure in the heavy jungle is much more eye-catching than even a very large mound covered with earth and trees.

Stairways also present a choice of representation. It is sometimes possible to see the sidewalls, and thus to measure the actual width of the stairs. Such stairs are drawn as realistic stairways, as on the great temples, even though the individual treads may not be visible at all. More commonly the stair merely appears as a bulge of rubble on the side of the mound or pyramid, and is stylized as on Str. 5D-35 or 5D-15. As noted previously, broad stairs may run the entire length of a structure and not be recognizable as such other than by the increased spread of the debris on one side.

In general we have tried to be consistent and to draw structures on the map as closely as possible to what can be seen in the field, but at times we have compromised between representing the actual form of the present-day debris and giving a better idea of the original structure.

It should be mentioned that before mapping began it was decided that contours would be reserved as far as possible for natural terrain and should be discontinued over constructions. Experience taught us, however, that it is often difficult to distinguish between natural terrain and certain constructions. A more liberal use of the contour line was therefore decided upon, and we have used contours on plazas, dikes, reservoirs, and causeways, even though most of these areas may have been paved. The lines do make visible the otherwise obscure, but important, drainage patterns of the large plazas and causeways. Contours were also used extensively around the North and South Acropolises, even where the regularity of contours and the presence of facing blocks may prove conclusively that some of these areas were stone-faced constructions. The justification for the use of contours here is the excellent impression they give of the true steepness of these constructions, and the difficulty of determining by inspection alone just where the construction areas begin and end. Despite the above exceptions, contours are normally discontinued over artificial features, and where contours alone are used to indicate terraces or platforms, the inference is that these were merely the result of shaping of earth, and not masonry constructions. Spot elevations are given in courts and platforms where contours are not used.

MAP SYMBOLS

Conventional topographic symbols have been used in most instances. However, a legend has been placed on each map sheet, because certain archaeological features require special symbols. The small triangle and dot represents a permanent benchmark—a steel stake generally set in concrete.

The solid circles and rectangles used on the map for altars and stelae are not meant to be scale drawings of the monuments. These symbols indicate location and close approximation of the orientation of the monuments at the time of mapping.

The same may be said for the open circles which indicate chultuns. They are symbols and show the location of the chultun orifices, not the orifice size, nor the size nor plan of the chultuns.

Quarries are indicated by a series of small crosses which follow the shape of the cut edge. These usually represent the quarrying of natural limestone outcrops.

Modern buildings roads, and trails, which are considered reasonably permanent are shown on the map.

In addition to the ancient occupation of Tikal, there was a small settlement during the latter half of the 19th century (see Tikal Report No. 1, p. 18; Maler, 1911, pp. 33 and 34). The locations of the visible remains of this occupation have been indicated by the symbol O. The surveyors' field notes, on file at the University Museum, contain larger scale drawings of almost all the mounds and ruins, along with much information which cannot be included on the map, such as elevations of each mound, description of any unusual features, decription of associated surface potsherds and artifacts, descriptions and measurements of chultuns, etc.

DESIGNATION OF CULTURE FEATURES

All structures and chultuns are numbered independently by square, the number prefixed by the grid square designation (e. g., Structure 5D-1, Str. 4D-1, Chultun 2B-1, Ch. 3B-1). Even the smallest mounds are numbered as structures. Platforms and terraces associated with mounds are not numbered on this map, although they may be given numbers as needed during more intensive investigation (see Tikal Report No. 5, p. 7). Within a 500 m. square the numbering generally begins in the northwest corner and progresses southward in a drifting pattern from side to side. However, mounds originally missed are found from time to time, and are given the next number for the square regardless of their location within the square. The same is true for chultuns. Stelae and altars, however, are numbered without regard for the grid square in which they are located. Certain other units, such as reservoirs, causeways, and important plazas, bear names rather than numbers (see Tikal Report No. 5 for provisions for numbering should the need arise).

Many structures at Tikal are described in earlier works and shown on earlier maps; they are thus already known by names or numbers, or both (Maudslay, 1889–1902; Maler, 1911; Tozzer, 1911; Tozzer and Merwin map, 1911; Morley, 1937–1938; Berlin, 1951 and 1953; Shook, 1951). It was necessary to supersede these to allow for a comprehensive numbering of all structures on the map. Table I gives the old and new designations for all previously noted structures, and may help to clarify some of the inevitable confusion stemming from redesignation.

Many monuments were also previously known and numbered, and it was again thought desirable to begin anew, at least in part. Monuments are now divided into four independently numbered series: carved stelae, plain stelae, carved altars, and plain altars. Table II gives

the correlation between the old and new monument designations, as well as the location of all monuments known to date. Because of the space limitation of the map, plain monument numbers are not shown in the Great Plaza area, where there are so many of them. They will be shown on a larger scale plan of the Plaza and North Terrace soon to be published in Tikal Report No. 12. Elsewhere on the map, where monument designations are shown, the distinction between the four series is as follows: carved monuments are designated by numbers alone, plain monuments are designated by a "P" preceding the number, stela designations are in italics, altar designations are in Roman type.

ORIENTATION OF THE STRUCTURES

One of the features of Tikal architecture that the map makes immediately apparent is the approximate, but consistent, orientation of the structures to the cardinal directions. Although, even in a given plaza group, the buildings are rarely exactly parallel or perpendicular to each other, there is neverthless a striking scarcity of buildings that are not "correctly" oriented within, say, 10°

The magnetic orientation of the Tikal map grid makes this orientation of the ruins more noticeable than it would be if the grid were true. This is because magnetic declination here is to the east, and most of the structures are oriented to the right of the true cardinal directions, that is, closer to the magnetic cardinal directions. Using 4 sq. km. as a sample (North Zone, Great Plaza, Corriental, and Temple IV sheets), approximately 70% of all structures are oriented to the right of the true cardinal directions versus 10% to the left. The rest fall approximately on the true cardinal headings. This same preponderance holds true on each of the sheets individually, even when only the small mounds are considered and large structures excluded. One would imagine that the large ceremonial structures would be more carefully laid out than small house platforms. Moreover, since many of these large structures are still standing, their actual orientation can be more accurately determined. Taking then as a sample only the 85 largest masonry structures of the Great Plaza sheet, one finds that 96% are oriented to the right of the true cardinal headings versus 1% to the left. Approximately 3% are aligned on the true cardinal headings. An interesting problem is posed as to the means used to obtain such a consistently eccentric orientation, since true north is quite easily obtained from the North Star.

LOCATION OF STRUCTURES

The location of structures seems to have been most strongly influenced by the topography. The site as a whole occupies a group of ridges and hills on the west side of the huge Santa Fe Bajo. The great acropolises and temple and palace groups occupy a high broken ridge with Temple IV at the western and highest point. From Temple IV, a causeway follows the crest of a narrow ridge running northeast to the North Zone concentration of temples and palaces, which occupies a large knob at the end of the ridge. Smaller structures are similarly concentrated on rather level ridges and hilltops, avoiding steep slopes and valley or drainage bottoms. The larger, more important structures are apt to be located on the highest point of a hill, with lesser structures extending down the slopes. Another favored location seems to have been the low, gentle slopes near the edges of the *bajos* or swampy areas.

THE CEREMONIAL CENTER OF THE SITE

The central area and largest structures of Tikal have already been generally described rather fully by previous reporters. Nevertheless, mapping disclosed many previously unknown features even in the central area. To mention a few: Shook in 1956 recognized as a

ballcourt two parallel structures south of the Temple Reservoir, and mapping disclosed similar parallel mounds on either side of these units. All together the four parallel structures appear to form a triple ballcourt, all three parallel and of the same size. Should this be verified by excavation, it will be the only triple ballcourt recorded in the Americas (Strs. 5D-78 through 81). One structure of the Central Acropolis (5D-46) was found to have an interior masonry stairway, the first one observed in Tikal. It runs from the roof level, or more likely, an upper story, to an interior room directly underneath. Temple III is shown to face directly toward the Temple Reservoir, suggesting possible analogy with other Maya temple—waterhole ensembles.

However, rather than try to cover the many such details, best contained in more intensive and limited reports, we thought it best to restrict the scope of this report to the more general overall picture newly disclosed by the map. Thus in the discussion of the ruins to follow, we shall confine ourselves almost exclusively to the small and previously unknown ruins which surround the main ceremonial groups.

MOUND GROUPING

The map shows a noticeable lack of isolated mounds. Almost all the ruins consist of groups, usually arranged around a leveled court or raised platform. This pattern is adhered to even where the topography is most unsuited to it. For example, even small groups built on steep slopes usually surround a terraced court, raised on the downhill side and, at times, sunken on the uphill side. The major mound in this situation is usually the uphill mound, often more like a shelf built into the side of the hill (e. g., Strs. 3D-122 through 124, Strs. 5E-9 and 84 through 87). Courts may have mounds on one, two, three, or all four sides, usually more than two. We suspect that thorough investigation would often show the existence of minor structures on sides of a court that now appears open. In the 1959 housemound excavations,structures appeared which were not noticed on the surface even after complete bushing of the area (e. g., Strs. 4F-42 and 4F-43).

Other than this very general type of several buildings around a quadrilateral court, it is difficult to distinguish any distinct types of small mound patterns at Tikal. Wurman noticed in 1958, however, that in a number of groups the eastern side of the court is occupied by a small pyramid or, more often, by a small approximately square platform, usually too small in area to have been the sub-structure of an inhabitable building, but at times the highest mound of the group (e. g., Strs. 6F-57 through 59, Strs. 4G-9 through 12, Strs. 3G-30 through 34, Strs. 7C-49 through 52).

AREAWIDE PATTERNS

Groups in general are non-contiguous, and are scattered irregularly over the occupied terrain, even in congested areas. Their pattern is more like our own higher-priced suburban habitation pattern than the usual urban pattern. There is nowhere, excepting the great ceremonial causeways, a recognizable pattern of streets or other traffic ways. This holds true even in the two exceptionally congested areas of the site where small courts are contiguous (see the ridges running across the southern edge of Square 5G, and from Square 4C across the southeast corner of 3C into 3D). In these areas communication between the adjacent courts and terraces by means of small stairways and short passages between buildings appears to have been the only traffic pattern; this is quite the same as in some of the large palace groups, such as the Central Acropolis. Bullard (1954, pp. 242-244) worked on this residential "traffic problem" at Mayapan, and found a few long, well-defined lanes, but in general concluded that traffic followed a maze of short, winding trails between house lots. Such seems to have been the case here at Tikal.

LIMITS OF THE SITE

It is difficult to fix the limits of what one might call Tikal proper. To the east, there is the natural boundary of the great Santa Fe Bajo, which was reached in our mapping. To the west, there is also a limiting stretch of *bajo*, but the density of structures seems to thin out somewhat west of Temple IV, well before the boundary set by the *bajo*. To the north, no limit was reached; the mound density appears to be as high in Squares 1D and 1E as in squares quite close to the center, even though these outer squares were mapped only by reconnaissance methods. To the south, the situation is similar; suitable land is covered with ruins.

It might be well to mention that islands of high land a little to the east in the Santa Fe Bajo also appear to be built up just as heavily as many areas of Tikal proper, including ruins of small vaulted palaces and temples. In other words, the eastern structural hiatus is only to that extent indicated by uninhabitable land.

OVERALL SITE PATTERN

Within the site proper, the map makes visible an overall pattern which allows speculation as to the pattern of growth of this great center. Most prominent in the pattern is the great sweep of large vaulted structures and their associated courts which stretch for more than a kilometer westward from Str. 5E-58 to Temple IV. To the north, atop another ridge, is the North Zone concentration of palaces and temples, with a dense surrounding of smaller, subsidiary structures all along its ridge (see Shook, 1951, for a description of the North Zone, i. e., H Group center). The very important Temple of the Inscriptions (Str. 6F-27) also sits in the midst of a very dense concentration of smaller structures, sweeping in a great arc from Square 7C eastward to Squares 4H and 5H.

A group of large palaces and temples (Strs. 6B-19 through 40) is found not quite 1 km. southwest of Temple IV, but with very little construction between it and the Great Temple. This group is so tightly knit that it might well be considered as an architectural unit, including its short, dead-end causeway. Although it is quite close to the center of the site, it shows little relationship to it, not even in continuity of settlement, and might just as logically be considered an outlying group as part of Tikal proper.

OUTLYING SITES

There are numerous outlying sites of varying sizes near Tikal. Only 3 km. west of Temple IV, on the other side of the *bajo*, is Chikin Tikal, consisting of two main groups of palaces and temples connected by a causeway. Two of the temples are still standing, and from atop the larger the great temples of Tikal are still clearly visible.

Only 5 km. south of Temple I is Uolantun (see Morley, 1937, Pl. 187, p. 262). There the temple with its stela seems to stand almost alone, but farther northeast along the high ridge upon which it sits are many other mounds, quite a few of them apparently ruins of small vaulted structures.

Without thorough mapping it is difficult to determine whether such sites are nuclei of concentrations of smaller structures, or merely ceremonial centers scattered through an overall dispersed settlement pattern. In actuality, practically all inhabitable land in this area seems to support scattered small mounds, including everywhere larger ruins which were probably small vaulted structures, at frequent intervals. However, around important ceremonial centers the settlement does appear to be heavier, probably in proportion to the size and importance of the center.

DENSITY OF OCCUPATION

The concentration of subsidiary structures around the great ceremonial constructions at Tikal is quite variable over the mapped area. The most important determining factor is topography: a considerable proportion of the immediate surrounding area is poorly drained or too precipitous to be desirable as a construction site. Of the central 9 sq. km., approximately 14% is *bajo* (poorly drained land which is swampy in the wet season). With two exceptions, no mounds were found in *bajo* areas. These exceptions are the groups of Strs. 3C-11 and 12, and Strs. 3C-13 through 15, which are both located in an area rather intermediate in nature between true *bajo* and dry land. It might be noted that one of the groups is also unusual for the exceptional width of its mounds as well as for its location (Strs. 3C-11 and 12).

With regard to steep slopes, there is no consistent limitation of construction such as that imposed by the *bajo*; steep slopes merely appear to have been considered less desirable for occupation. They are often bare of structures, and almost always more lightly built up than other well drained areas.

In all, approximately 2120 numbered structures are included in the 9 sq. km. mapped in detail, an average of 235/sq. km. As mentioned above, the concentration is quite variable over the mapped area: considering the 500 m. squares separately, the density ranges from 52/sq. km. (Squares 2D and 4G) to 640/sq. km. (Square 6E). However, to arrive at a meaningful figure it is necessary to eliminate *bajo* and water-storage areas. This leaves us an inhabitable area of about 7.76 sq. km. with an average density of 275 individual structures per sq. km.

COMPARISON OF DENSITY WITH OTHER SITES

At nearby Uaxactun, Ricketson (1937, pp. 15–17), over an arbitrary cross-shaped area of 2.274 sq. km., determined the "house mound" density to be only 82/sq. km. of dry land (considering only the .953 sq. km. of the cross which was neither *bajo* nor ceremonial plaza area). Excluding from our calculations the Great Plaza, North Zone, and Temple IV sheets, which contain most of the ceremonial plaza areas here, but without otherwise trying to distinguish between house mounds and other mounds, we still obtain a density of 280 mounds per sq. km. of dry land, which should be comparable to the Uaxactun figures. The difference is startling. However, for several reasons a meaningful comparison of the Uaxactun figures with Tikal's is difficult. Did Ricketson perhaps exclude in his count mounds which were too big to fit his idea of a "house"? Was his search of the delineated area really as thorough as he thought it was? Experience here has shown that untrained men will walk right over even relatively high mounds in the heavy underbrush without recognizing them. Either Ricketson's sample was far from representative or the nature of settlement around Uaxactun was quite different from that at Tikal. It seems reasonable to suppose that the latter is at least partly true; the much greater size and importance of Tikal, if nothing else, may well have given rise to a much greater population density near the center. All the artisans, administrators, repairmen, nobility, priesthood, and the like, which must have been a necessary adjunct of such a great site, would be forced by the very physical size of the non-residential public areas to live closer together in the environs merely to be within a reasonable distance of their places of work.

At Mayapan, the only other large Maya site that has been mapped in detail comparable to Tikal, the density of structures within the city wall is about 810/sq. km. (Jones, 1952). Of course, Mayapan was a late development of the true urban settlement pattern. Moreover, direct comparison of density of construction is again difficult. Since Mayapan is consider-

ably later than the Peten sites, is built on relatively flat ground, and has a much lighter cover of vegetation, virtually all remains of structures are still observable on the surface in a thorough survey. At Tikal we have to cope with the problem of irregular terrain, dense cover, and the destructive effects of centuries of heavy rain and exuberant vegetation. A very few of the small mounds shown on the map may not be remains of artificially constructed stone structures, but rather debris left by uprooted trees or from ancient quarrying. On the other hand, many more small mounds undoubtedly were not distinguished at all because of the thick undergrowth and very rough ground surface; and insubstantial structures may have been completely erased by time. Thus the actual density of residential structures in Tikal was certainly somewhat greater than the map shows, and possibly appreciably greater.

The perimeter squares have not been included in the above density comparisons, because the mapping methods used for them were much less thorough and exact than for the central 9 sq. km. We would guess, however, in the perimeter squares no more than 10% of the mounds were missed because of the less intensive type of survey. These outer squares total 7 sq. km., of which about 2 2/3 sq. km. are *bajo*, leaving about 4 1/3 sq. km. of dry land. In this area some 625 mounds were mapped, an average of about 145 individual mounds per square kilometer, somewhat less than the density of the central area, as might be expected from the peripheral location as well as from the different mapping methods; but still almost double Ricketson's Uaxactun density.

The question naturally arises as to whether all the structures at Tikal were inhabited at any one time. So far, little evidence on the problem has been accumulated, but it might be mentioned as an indication that surface sherds brought back by the surveyors from various spots all over the site were almost invariably Late Classic.

CHULTUNS

One hundred ninety-seven chultun openings were mapped in the central 9 sq. km. of the site. Distribution was very uneven, some locations containing much higher concentrations than others. Of these 197, 22% were found in groups ranging from two up to eight. The largest group consists of Chultuns 2B-9 through 16. The map discloses no general correlation between the distribution of chultuns and the distribution of ruins. Many chultuns are within enclosed courts, or even partially covered by mounds, but just as many are found unassociated with and, at times, quite far from any visible structures.

A majority of the chultuns mapped were filled with dirt and debris, so that only the cut orifice remained visible. It was therefore impossible to determine whether adjacent openings were perhaps interconnected underground, such as were found in several cases at Uaxactun (Ricketson, 1937, p. 121). Excavation in some of the clusters of chultuns might show that two or more openings pertain to the same chultun.

Fifty to 60 cm. seems to be the average diameter of the chultun openings, although they were found ranging from 37 cm. to 130 cm. in rare instances. Almost all the openings are approximately round, although again several exceptions were found (e. g., Ch. 7F-3, 2E-2, 6B-1). In no case was plaster found on the walls of the chultuns. Since the natural limestone is very porous, this seems to indicate that they were not used for water storage, one of the uses of chultuns in Yucatan.

Many of the chultun openings were barely visible beneath the accumulated debris, and were found purely by chance. A number were found with lids in place, others with broken lids nearby or fallen in, and many with lips presumably cut to receive lids. Probably a majority of those chultuns with lids still intact are completely hidden from view, and were

therefore not found. It is difficult even to speculate as to how numerous these might be.

QUARRIES

Many indications of quarrying were found while mapping Tikal; in fact, quarries were found virtually everywhere. They are almost always quite near any large structure, as might be expected, since on high ground stone is everywhere just under the surface. All indications are that, wherever possible, construction stone came from the immediate environs.

Although the stone in this area is soft, and thus usually quite weathered where exposed, in many cases the stone still retains tool marks of quarrying operations. These range from slight vertical ribbing on vertical cuts, to rather large vertical grooves or slots. These slots or half-holes are usually semicircular in section, often rather small in diameter, but ranging up to 10 cm. or more, and often larger at the top, that is, conical. Other slots are roughly rectangular in section, again almost always larger at the top. Ruppert and Dennison (1943, p. 74, Pl. 31a) show a photo of such grooves at Bateas in southern Campeche. Even where tool marks are not visible, quarrying is clearly evidenced by long, straight, vertical edges of bedrock, or more often, by an edge which zigzags in a series of right angles where rectangular blocks have been removed. In several places blocks have been cut out, or nearly cut out, and not removed (e. g., Square 4C, W. of Str. 4C-36).

Several different types of quarries were found. The simplest and most common is merely the cutting of blocks from outcrops on the sides of hills. Sometimes this type of operation is quite extensive however. On more level areas, quarrying may extend to stripping a very large area of its entire surface layer of stone, presumably down to the oft-mentioned underlying layer of marl. Evidence of this consists of standing "islands" of stone quarried around all edges, and separated by level areas as much as 2 m. lower. A good example of this surface stripping is around Temple IV, particularly to the north. The "islands" may have been left because of localized patches of poor quality stone, possibly to avoid chultuns (e. g., Ch. 4C-3), or in some cases to avoid buildings. The group of structures 4C-49 through 52 appears to have been spared during stripping operations in this same area. Some chultuns elsewhere have been cut into by later quarrying (e. g., 6G-12 and 3D-10).

A third type of quarry is the pit, in some cases quite large. Perhaps deposits of particularly good stone warranted this type, or secondary considerations, such as the usefulness of the resulting pit. The most obvious large quarry pit is the Madeira Reservoir, located in northwest Square 6D. It is shaped as a round-cornered square, 6 or 7 m. deep on the deep side, with very regular, steep sides. Since the sides are so even, the actual quarrying cuts are visible only here and there but, most interestingly, near the top of the "dike" closing the eastern side of the pit, thus showing that the dike is of bedrock. Immediately south of this great pit is an abrupt hill or, more likely, pyramid, although it is indicated by contours on the map. It is one of the more puzzling constructions at Tikal, either never finished or else of very inferior construction, since not a bit of cut stone surface is now visible except where trees have uprooted, and the shape is curiously asymmetrical with eccentrically located ramps or stairs. The obvious inference is that this great mound is built up of the material from the yawning pit at its foot.

UNUSUAL MOUND TYPES

In some ways reminiscent of the above-mentioned "unfinished pyramid" are a number of artificially shaped hills or acropolises about the site. Only 100 m. south of the above-mentioned pyramid is a low hill, too regular to be natural, but very curiously irregular on top—

again as if it were something unfinished. Right on the western border of Square 3B are two more very irregular hill-platforms, and another one right across the line in 3A. These all support low mounds (e. g., Str. 3B-11), but very small and insignificant mounds for such high platforms. Three km. WSW of Temple IV, and just a little south of the previously mentioned site of Chikin Tikal, is another small outlying site, Kanmul. Except for a large pyramid-terrace unit and a few other small structures, this site consists solely of four of these high, quadrilateral, artificial-looking hills, all freestanding and large enough to be termed acropolises, but supporting only a few small, low, mounds.

One group of mounds on the Tikal map merits special mention: Strs. 2G-35 and 36. These mounds are uniquely large and shapeless—much wider and more weathered than any other ruins here of comparable height. It may be that they are much older, or of a different type of construction (earth or adobe ?), or that some less obvious difference gives them their present unusual configuration.

RESERVOIRS

The present-day capacity of the reservoirs of Tikal (assuming they all were watertight) is some 154,300 cubic meters (40,800,000 gal.) (see Table III). These reservoirs are of two major types: the deep, dug or constructed reservoirs in the central area, and the shallow, open reservoirs usually located in natural drainages or *bajos*. Those of the former type (Palace, Temple, Causeway, Hidden, and Madeira Reservoirs) no longer hold water, their plaster- or clay-lined basins long since opened by myriads of tree roots. The second type (Tikal, Corriental, Inscriptions, Bejucal, Subin, Pital, Las Chamacas) includes all those that now hold water and are locally called *aguadas*. They are relatively shallow basins in deep beds of impermeable clay, and thus have retained their watertightness. The smaller *aguadas* show no signs of alteration by man, and may well be entirely natural reservoirs. The larger (Tikal, Corriental, Inscriptions, Bejucal) may have originated as natural basins, but were deepened and enlarged to increase their capacity. The present water supply of the Tikal Project comes from the ancient Tikal Reservoir. Our camp buildings are built upon the embankment surrounding this reservoir, probably piled there during the original digging operation, and possibly enlarged by periodic desiltings. These earth embankments around the reservoirs are not just on the downhill sides, where they act as dams, but on the uphill sides as well, where they act as barriers to control and limit the inflow of water.

Numerous reservoirs of this latter type are found along the edge of the great Bajo Santa Fe farther to the east of Tikal, and, in fact, scattered throughout the surrounding countryside wherever there is an appropriate location. Many of these are known and used today as the sites of temporary chicle camps; many more are lost in the bush. The Perdido Reservoir (Square 6C) is in a class by itself. It appears to have been deliberately built to take advantage of the runoff from the court in front of Temple 5C-49, and consists of a very regular horseshoe-shaped embankment erected in a low area on the edge of the *bajo* where the drainage from the above-mentioned court unites with a natural drainage from the north. It probably held more than a meter's depth of water.

To use the water capacity given above as a departure for that old favorite of water supply population calculations, one should take into account the great amount of silting and humus accumulation that has partially filled the reservoirs during the past thousand years, the possible erosion of the top of the retaining dikes of the Palace and Causeway Reservoirs, and the very probable wash-out of the Corriental Reservoir dike at the outlet. With regard to silting-in of reservoirs, limited excavations this season near the edge of the Hidden Reservoir disclosed about two meters of apparently washed-in earth above the paved bottom. Presumably this infill is even deeper in the center.

The reservoir capacity seems to have been much less than that necessary to catch all the available runoff. For an example, the Temple and Palace Reservoirs collect water from a watershed (virtually all originally paved, non-absorbent surfaces) of about 147,000 sq. m. Lundell (1939, p. 38) says that no areas of the Peten have an average annual rainfall of less than 1500 mm.; the actual rainfall at Tikal during the past year, 1960, was 1790.5 mm. Using the minimum rainfall, a total of 220,500 cubic meters of water collects over the above watershed, more than three times the reservoirs' combined capacity of 66,000 cubic meters. Other reservoirs generally collect from a considerably larger area in proportion to their size, but since these areas contain a smaller proportion of paved surfaces, they presumably had a smaller runoff. Nevertheless, drainages are artificially shunted around several reservoirs where they might just as easily have emptied into them (e. g. Corriental, Bejucal), indicating that there was more water available than it was possible or desirable to store. At the Corriental Reservoir there is evidence of a deliberate variable control of water inflow. The two inlets to the reservoir, entering from the northwest and from the south, are at different levels. If the reservoir filled only from the northwest inlet it could reach a level as high as 3 m. above the southern inlet, presupposing the dikes were constructed so as to hold that much water. The existing relief or shunt drainage from the southern inlet makes it seem likely that at times the southern inlet was closed and the incoming water diverted around the reservoir *via* the alternate drainage, thus permitting the reservoir to continue filling to a considerably higher level (if not 3 m. higher) *via* the main (northwest) inlet. Today, of course, all water from the south enters the reservoir directly, and the alternate drainage carries no water, as the reservoir outlet has eroded down to a much lower level. Some meters downstream from the outlet are several very large blocks of hard limestone, rather out of place in the bottom of a drainage, and suggestive of a violent wash-out of a stone spillway sometime in the past. The computed capacity of this reservoir is calculated with the dike reconstructed to bring the water level up to that of the southern inlet and relief spillway.

Besides these named reservoirs, there were no doubt numerous smaller water storage facilities. On the southwest side of the Mendez Causeway in Square 6F is a low area, the terminus of a rather large drainage entering from Square 6E, and the causeway parapet wall has been noticeably thickened all along here, as if to form a dam. It seems quite likely that this was to store water. There are several quarried pits located where they would have served to catch surface runoff (e. g., the pit at the foot of the southeast corner of the plaza of Str. 3E-38). There are also numerous small depressions or *pozas*, almost always in association with mound groups, which may well have been household reservoirs (e. g., near Str. 7C-15, near Str. 6D-49, near Str. 3B-29, near Str. 6B-19). Although it seems from superficial observation that chultuns here were not lined so as to be watertight, it is always possible that some underground cisterns were used to store water.

SURFACE DRAINAGE SYSTEM

In connection with water supply, it might well be pointed out, and the map shows clearly, that although there is relatively little surface drainage today even in the rainy season, there are many well-defined drainages, and even sharp gulleys and ravines. Some of these appear to have been altered by quarrying. It would seem that surface runoff must have been considerably greater at the time these were being formed than it is today, and from the signs of quarrying, they were formed before the cessation of large scale building activity.

In line with this surface runoff business, it will be noted that there are many large drainages on the map which run down to a *bajo* quite close to heavily built-up areas, and where

it would seem to have been both simple and advantageous to build a reservoir. Yet this water is all allowed to run out into the *bajo* without attempt at storage. The most logical conclusion is that there was a larger water supply than the population had need of.

A curious feature of the drainage pattern of Tikal is its discontinuity; a well-defined ravine often reaches a stretch of *bajo* and disappears altogether, perhaps to run off again in a different direction from the other side of the *bajo*.

BAJOS

A few words might well be said here about these *bajos*, since this is probably the first time that considerable *bajo* areas have been accurately mapped. These areas are quite dry during the dry season, but they are nevertheless easily distinguishable by the differences in vegetation, and this was the criterion used by the mappers. The three main distinguishable ecologies around Tikal are the *high bush* (well drained, forested uplands), *high bajo* (rainy season swampland, but heavily forested with growth superficially identical to the *high bush*), and *logwood bajo* (very large, flat areas covered with low, scrubby growth, the thorny logwood tree predominant). All the *bajo* on the Tikal map is *high bajo*. All indications are that the *bajos* are the same today, in both extent and nature, as during the time of heaviest occupation of the site. Mounds crowd everywhere right down to the present day edge of the *bajo*, but, as previously discussed, almost never are in it. Logwood, which grows here only in the *bajo*, was used for lintels and tie-beams in many ancient structures at Tikal. Since *bajo* areas are uncultivable, but support such growth as logwood, sapodillo, and cedar, they would have served as a valuable source of forest products even though all the high land was cleared and farmed.

Theories have been advanced that the *bajos* were once great lakes which silted in during the Maya occupation. It will be seen from the map that the *bajo* areas here are almost all continuous and interconnected, and that they exist on many different levels. Nowhere, except for the small *bajo* in western Square 7D, which may well have been a shallow reservoir, is there a *bajo* which occupies any kind of basin which could have ever held water. The water level of our proposed ancient lake would have had to be below the level of any of the *bajos* on the Tikal map, or large numbers of buildings on high land (that is, well-drained land) would have been under water. As a matter of fact, the actual *bajo* boundary is not determined by elevation, but by the drainage gradient and the porosity of the soil.

Of course, the *bajo* on our map is only a small sample, and moreover the map does not extend into areas of *logwood bajo*. The main body of the Bajo Santa Fe to the east and the other great *bajos* is *logwood bajo*. These areas are more poorly drained than the *bajo* areas on our map, and are covered with water during much of the rainy season. The central areas of some of these *bajos* may once have been lakes, but without accurate topographic mapping this is difficult to ascertain.

CONCLUSION

The Tikal map provides students of Pre-Columbian cultures with a comprehensive plan of a single, exceptionally large, lowland Maya site. For the first time an extensive area has been mapped beyond the nucleus of impressive religious and public edifices, permitting, we hope, a firmer base for studies of site planning and development, demography, settlement patterns, and degree of urbanism.

MAP SHEETS ACCOMPANYING THIS REPORT

THE RUINS OF TIKAL

BEJUCAL

CAMP

CORRIENTAL

ENCANTO

GREAT PLAZA

NORTH ZONE

PERDIDO

TEMPLE IV

TEMPLE OF THE INSCRIPTIONS

TABLE 1

NEW STRUCTURE NUMERATION AND EQUIVALENCES WITH PREVIOUS DESIGNATIONS

(COMPILED BY WILLIAM A. HAVILAND)

Tozzer and Merwin (1911)	*Morley (1937–38)*	*Shook (1951)*	*New Numeration*	*Maler's Descriptive Designation (1911)*	*Popular Designation*
Southeastern Section	G Group				
1			Str. 5E-58 and 60	Palace of the facades with vertical grooves	
2			Str. 5E-55		
3			Str. 6E-50		
4			Str. 5E-50 and 51	Palace of the rear chambers and great stone benches	
Central Acropolis	A Group				Central Acropolis
5			Str. 5D-47		
6 and 7			Str. 5D-48		
8			Str. 5D-49		
10			Str. 5D-50 thru 52	Palace of five stories	
12			Str. 5D-54		
13			Str. 5D-57		
14			Str. 5D-65	Palace of two stories opposite Temple V.	Maler's Palace
5			Str. 5D-61		
6			Str. 5D-60		
17			Str. 5D-62		
18			Str. 5D-63 and 64		
19			Str. 5D-66		
20			Str. 5D-71		
21			Str. 5D-72		
22			Str. 5D-73		
23			Str. 5D-56		
24 and 25			Str. 5D-46		
26			Str. 5D-45		
27			Str. 5E-38	Three storied structure with three rooms in top story	
Great Plaza			Pl. 5D- 1		Great Plaza
28			Str. 5D-38		
29			Str. 5D-29		
30			Str. 5D-30		
31			Str. 5D-31		
Temple I			Str. 5D-1	Great Temple I	Temple of the Giant Jaguar
Temple II			Str. 5D-2	Great Temple II	Temple of the Masks

Tozzer and Merwin (1911)	*Morley (1937–38)*	*Shook (1951)*	*New Numeration*	*Maler's Descriptive Designation (1911)*	*Popular Designation*
Northern Acropolis				Lesser Acropolis	North Acropolis
32			Str. 5D-32		
33			Str. 5D-33		
34			Str. 5D-34		Temple of the Red Stela
35			Str. 5D-35		
36			Str. 5D-26		
37			Str. 5D-24		
38			Str. 5D-23		
39			Str. 5D-22		
40			Str. 5D-21		
41			Str. 5D-20		
42			Str. 5D-16	Palace of the 2 galleries	
Southern Acropolis	B Group			Lesser Acropolis west of Great Temple V.	South Acropolis
Temple V			Str. 5D-5	Great Temple V	
43			Str. 5D-105		
44, 45, and 46			Str. 5D-102		
47			Str. 5D-103		
48			Str. 5D-104		
49 and 50			Str. 5D-101		
51			Str. 5D-100		
Southwestern Section	C Group				
52			Str. 5D-99		
53			Str. 5D-98		
54			Str. 5D-97		
55			Str. 5D-96	Central Temple of row of seven temples	Seven Temples
56			Str. 5D-95		
57			Str. 5D-94		
58			Str. 5D-93		
59			Str. 5D-92	First of three palaces on the southern side of the square of seven temples	
60			Str. 5D-91	Middle palace on the southern side of the square of seven temples	
61			Str. 5D-81 thru 83		
62			Str. 5D-84		
63			Str. 5D-86		
64			Str. 5D-87		

Tozzer and Merwin (1911)	Morley (1937–38)	Shook (1951)	New Numeration	Maler's Descriptive Designation (1911)	Popular Designation
65			Str. 5D-77		
66			Str. 5C-54		
67			Str. 5C-49		
68			Str. 5C-45 thru 47		
Northwestern Section					
69			Str. 5C-13	Palace of two stories and twenty-one chambers in rear of Great Temple III.	Bat Palace
Temple III			Str. 5D-3	Great Temple III	Temple of the Jaguar Priest
	D Group				
70			Str. 5C-14		
71			Str. 5C-16		
72			Str. 5C-17		
73			Str. 5C-9	Sacerdotal palace belonging to Great Temple IV	
Temple IV			Str. 5C-4	Great Temple IV	Temple of the Double-headed Serpent
Eastern Section	F Group		East Plaza	Great terrace to east of Temple I	
74			Str. 5E-1		
75			Str. 4E-48		
76			Str. 4E-44 thru 46		
77			Str. 4E-47	Palace of twenty chambers	
Northern City	E Group				
78			Str. 4E-36		
79			Str. 4E-38		
80			Str. 4E-40		
81			Str. 4E-43		
82			Str. 4E-42		
83			Str. 4D-41		
84			Str. 4D-45		
85			Str. 4D-32		
86			Str. 4D-33		

Tozzer and Merwin (1911)	*Morley (1937–38)*	*Shook (1951)*	*New Numeration*	*Maler's Descriptive Designation (1911)*	*Popular Designation*
87			Str. 4D-34		
88			Str. 4D-12 and 13		
89			Str. 4D-14		
		H Group	North Zone		
		90	Str. 3D-43		
		91	Str. 3D-41		
		92	Str. 3D-42		
		93	Str. 3D-40		
		94	Str. 3D-44		
		95	Str. 3D-47		
		96	Str. 3D-46		
		97	Str. 3D-45		
		98	Str. 3D-100		
		99	Str. 3D-53		
		I Group			
		Temple VI	Str. 6F-27		Temple of the Inscriptions

* *

Twin Pyramid Complexes	*Structures included*	*Stela in enclosure*
N	Str. 5C-14, 15, 16, 17, 18	16
O	Str. 4D-31, 32, 33, 34	P55
P	Str. 3D-44, 45, 46, 47, 48	20
Q	Str. 4E-36, 37, 38, 39	22
R	Str. 4E-40, 41, 42, 43	19

TABLE 2

MONUMENT LIST

(COMPILED BY EDWIN M. SHOOK)

A. CARVED STELAE AND ASSOCIATED ALTARS

Stelae	*Altars*	*Location*
1	*	S. base of Str. 5D-26, North Acropolis
2	*	S. base of Str. 5D-26, North Acropolis
3	*	S. base of Str. 5D-34, North Terrace
4	1 (Frag. 1)	S. base of Str. 5D-34, North Terrace
5	2	S. base of Str. 5D-33, North Terrace
6	*	S. base of Str. 5D-32, North Terrace
7	*	W. base of Str. 5D-29, North Terrace
8	*	Great Plaza, N. row of monuments
9	*	Great Plaza, N. row of monuments
10	*	Great Plaza, N. row of monuments
11	11	Great Plaza, N. row of monuments
12	P14	Great Plaza, N. row of monuments
13	*	Great Plaza, N. row of monuments
14	*	Great Plaza, N. row of monuments
15	*	S. of Str. 5D-13, West Plaza
16	5	Twin Pyramid Complex N, within Str. 5C-17
17	*	N. base of Str. 5E-30, off N. side of East Plaza
18	*	Great Plaza, N. row of monuments
19	6	Twin Pyramid Complex R, within Str. 4E-43
20	8	Twin Pyramid Complex P, within Str. 3D-47
21	9	W. base of Str. 6F-27 (Temple of Inscriptions)
22	10	Twin Pyramid Complex Q, within Str. 4E-39
23	*	W. base of Str. 7F-30
24	7	E. base of Str. 5D-3 (Temple III)
25	*	12 m. E. of Str. 7F-85
26	*	Rear chamber, Str. 5D-34, North Acropolis
27	*	120 m. E. of Str. 2F-12
28	*	About 40 m. N. of Str. 5D-8
29	*	On slope about 12 m. E. of Str. 5D-9
30	14	N. base of Str. 3D-99
31	*	Rear chamber of buried temple below Str. 5D-33, North Acropolis

B. CARVED ALTARS AND ASSOCIATED STELAE

Altars	*Stelae*	*Location*
1 (Frag.1)	4	S. base of Str. 5D-34, North Terrace
1 (Frag.2)	P2	S. base of Str. 5D-34, North Terrace
2	5	S. base of Str. 5D-33, North Terrace
3	P7	S. base of Str. 5D-33, North Terrace
4	P8	S. base of Str. 5D-32, North Terrace
5	16	Twin Pyramid Complex N, within Str. 5C-17
6	19	Twin Pyramid Complex R, within Str. 4E-43
7	24	E. base of Str. 5D-3 (Temple III)
8	20	Twin Pyramid Complex P, within Str. 3D-47
9	21	W. base of Str. 6F-27 (Temple of the Inscriptions)
10	22	Twin Pyramid Complex Q, within Str. 4E-39
11	11	Great Plaza, N. row of monuments

Altars	*Stelae*	*Location*
12	*	S. base of Str. 5D-32, North Terrace
13	*	On slope about 12 m. east of Str. 5D-9
14	30	N. base of Str. 3D-99
15	P21	Great Plaza, S. row of monuments (Altar 15 originally Frag. 2 of Stela 2)
16	*	Frag. 1, from E. end, rear chamber, Str. 5D-34
17	*	Frag. 1, fill against base of P6, S. base of Str. 5D-33
18	*	Frag. 1, from surface of Str. 5D-35, N. W. corner

C. PLAIN STELAE AND ALTARS AND THEIR ASSOCIATED MONUMENTS

(Morley's numeration shown in parentheses)

Stelae	*Altars*	*Associated Monuments*	*Location*
P1 (A1)	P1	*	S. base of Str. 5D-34, North Terrace
P2 (A2)	*	Alt. 1 (Frag.2)	S. base of Str. 5D-34, North Terrace
P3 (A3)	P2	*	S. base of Str. 5D-33, North Terrace
P4 (A4)	P3	*	S. base of Str. 5D-33, North Terrace
P5 (A5)	*	Alt.P10	S. base of Str. 5D-33, North Terrace
P6 (A6)	P4	*	S. base of Str. 5D-33, North Terrace
P7 (A7)	*	Alt. 3	S. base of Str. 5D-33, North Terrace
P8 (A8)	*	Alt. 4	S. base of Str. 5D-32, North Terrace
P9 (A9)	P5	*	S. base of Str. 5D-32, North Terrace
P10 (A10)	P6	*	W. base of Str. 5D-29, North Terrace
P11 (A11)	*	Alt.P16	Great Plaza, N. row of monuments
*	P7	*	Great Plaza, N. row of monuments
P12 (A12)	*	*	Great Plaza, N. row of monuments
*	P8	*	Great Plaza, N. row of monuments
P13 (A13)	P9	*	Great Plaza, N. row of monuments
*	P10	St. P5	S. base of Str. 5D-33, North Terrace
P14 (A14)	P11	*	Great Plaza, N. row of monuments
P15 (A15)	P12	*	Great Plaza, N. row of monuments
P16	*	*	Great Plaza, N. row of monuments
P17 (A16)	P13	*	Great Plaza, N. row of monuments
P18 (A17)	*	*	Great Plaza, N. row of monuments
P19 (A18)	*	*	Great Plaza, N. row of monuments
*	P14	St. 12	Great Plaza, N. row of monuments
P20 (A19)	P15	*	Great Plaza, S. row of monuments
P21 (A20)	*	Alt. 15	Great Plaza, S. row of monuments (Altar 15 originally Frag. 2 of Stela 2)
*	P16	St. P11	Great Plaza, N. row of monuments
P22 (A21)	P17	*	Great Plaza, S. row of monuments
P23 (A22)	P18	*	Great Plaza, S. row of monuments
P24 (A23)	P19	*	Great Plaza, S. row of monuments
P25 (A 24)	P20	*	Great Plaza, S. row of monuments
P26 (A25)	*	*	Great Plaza, S. row of monuments
P27 (A26)	P21	*	Great Plaza, S. row of monuments
P28 (A27)	P22	*	Great Plaza, W. base of Str. 5D-1 (Temple I)
P29 (A28)	P23	*	Great Plaza, W. base of Str. 5D-1 (Temple I)
*	P24 (Alt.1)	St. P83	Great Plaza, W. base of Str. 5D-2 (Temple II)
P30	*	*	West Plaza, N. W. of Str. 5D-2 (Temple II)
P31	*	*	West Plaza, N. W. of Str. 5D-2 (Temple II)
*	P26	MS-38	West Plaza, N. W. of Str. 5D-2 (Temple II)
P32 (A29)	*	*	West Plaza, E. of Str. 5D-11
P33 (A30)	*	*	West Plaza, N. E. of Str. 5D-11

Altars P25 and P72 are non-existent—(vacant numbers). For use of "MS" (Miscellaneous Stone) and "Frag." (Fragment), see Tikal Report No. 5.

Stelae	*Altars*	*Associated Monuments*	*Location*
*	P27	*	West Plaza, N. E. of Str. 5D-11
*	P28	*	West Plaza, N. E. of Str. 5D-11
*	P29	*	West Plaza, N. E. of Str. 5D-11
P34	*	*	N. base of Str. 5E-30, off N. side of East Plaza
P35	*	*	Court S. of Str. 4D-36 and W. of Maler Causeway
*	P30	*	Court S. of Str. 4D-36 and W. of Maler Causeway
P36 (D9)	*	*	In court, N. E. base of Str. 5D-7
P37 (C1)	P31	*	W. base of Str. 5D-96
P38	P32	*	S. of Str. 5B-19
P39	*	*	S. of Str. 5B-19
P40	P33	*	S. of Str. 5B-19
P41	P34	*	S. of Str. 5B-19
P42	*	*	W. base of Str. 6B-30
P43 (D7)	P35	*	E. base of Str. 5C-4 (Temple IV)
P44 (D1)	P36	*	Twin Pyramid Complex N, W. pair, W. base of Str. 5C-14
P45 (D2)	P37	*	Twin Pyramid Complex N, N. end of row, W. base of Str. 5C-14
P46 (D3)	P38	*	Twin Pyramid Complex N, 2nd from N. end of row, W. base of Str. 5C-14
P47 (D4)	P39	*	Twin Pyramid Complex N, Center of row, W. base of Str. 5C-14
P48 (D5)	P40	*	Twin Pyramid Complex N, 2nd from S. end of row, W. base of Str. 5C-14
P49 (D6)	P41	*	Twin Pyramid Complex N, S. end of row, W. base of Str. 5C-14
P50 (H1)	P42	*	Twin Pyramid Complex P, N. end of row, W. base of Str. 3D-44
P51 (H2)	P43	*	Twin Pyramid Complex P, 2nd from N. end of row, W. base of Str. 3D-44
P52 (H3)	P44	*	Twin Pyramid Complex P, Center of row, W. base of Str. 3D-44
P53 (H4)	P45	*	Twin Pyramid Complex P, 2nd from S. end of row, W. base of Str. 3D-44
P54 (H5)	P46	*	Twin Pyramid Complex P, S. end of row, W. base of Str. 3D-44
P55 (E1)	P47	*	Twin Pyramid Complex O, within Str. 4D-33
P56 (E2)	P48	*	Twin Pyramid Complex O, W. pair, W. base of Str. 4D-32
P57 (E3)	P49	*	Twin Pyramid Complex O, N. end of row, W. base of Str. 4D-32
P58 (E4)	P50	*	Twin Pyramid Complex O, Center of row, W. base of Str. 4D-32
P59 (E5)	P51	*	Twin Pyramid Complex O, S. end of row, W. base of Str. 4D-32
*	P52(Alt.E1)	*	Twin Pyramid Complex R, Lone altar, N. end of row, W. base of Str. 4E-40
P60 (E6)	P53	*	Twin Pyramid Complex R, N. end of row, W. base of Str. 4E-40
P61 (E7)	P54	*	Twin Pyramid Complex R, Center of row, W. base of Str. 4E-40
P62 (E8)	P55	*	Twin Pyramid Complex R, 2nd from S. end of row, W. base of Str. 4E-40
P63 (E9)	P56	*	Twin Pyramid Complex R, S. end of row, W. base of Str. 4E-40
P64 (E10)	P57	*	Twin Pyramid Complex Q, W. pair, W. base of Str. 4E-36
P65 (E11)	P58	*	Twin Pyramid Complex Q, N. end of row, W. base of Str. 4E-36
P66 (E12)	P59	*	Twin Pyramid Complex Q, 2nd from N. end of row, W. base of Str. 4E-36
P67 (E13)	P60	*	Twin Pyramid Complex Q, 3rd from N. end of row, W. base of Str. 4E-36
P68 (E14)	P61	*	Twin Pyramid Complex Q, 4th from N. end of row, W. base of Str. 4E-36
P69 (E15)	P62	*	Twin Pyramid Complex Q, Center of row, W. base of Str. 4E-36
P70 (E16)	P63	*	Twin Pyramid Complex Q, 3rd from S. end of row, W. base of Str. 4E-36
P71 (E17)	P64	*	Twin Pyramid Complex Q, 2nd from S. end of row, W. base of Str. 4E- 36
P72 (E18)	P65	*	Twin Pyramid Complex Q, S. end of row, W. base of Str. 4E-36
P73 (11)	P66	*	S. pair at W. base of Str. 6F-27 (Temple of the Inscriptions)
P74 (12)	P67	*	N. pair at W. base of Str. 6F-27
P75 (13)	P68	*	Western edge of platform of Str. 6F-27
P76 (14)	P69	*	In court, W. of Str. 6F-27
P77	*	*	W. base of Str. 4D-19
P78	*	*	Approx. 50 m. N. W. of Str. 4D-19
P79	*	*	W. base of Str. 3D-100, N. stela
P80	*	*	W. base of Str. 3D-100, center stela
P81	*	*	W. base of Str. 3D-100, S. stela
*	P70	*	S. base of Str. 5D-32, North Terrace
P82	P71	*	W. base of Str. 5D-29, North Terrace
P83	*	P24 (Alt. A1)	Great Plaza, E. base of Str. 5D-2 (Temple II)
*	P73	*	Court S. of Str. 4D-36, W. of Maler Causeway

TABLE 3

CAPACITIES OF TIKAL RESERVOIRS

	cu. m.	*gallons*
Palace Reservoir	38,680	10,210,000
Temple Reservoir	27,140	7,175,000
Tikal Reservoir	21,060	5,563,000
Corriental Reservoir*	17,380	4,591,000
Inscriptions Reservoir	15,310	4,045,000
Causeway Reservoir	14,270	3,771,000
Bejucal Reservoir	7,380	1,950,000
Madeira Reservoir	6,340	1,680,000
Perdido Reservoir**	3,070	812,000
Hidden Reservoir***	2,620	693,000
Subin Aguada	400	106,000
Las Chamacas Aguada	350	92,000
Pital Aguada	310	82,000
	154,310	40,770,000

Volumes were graphically computed directly from the contours of the map.

*The Corriental capacity was calculated assuming the dike reconstructed to bring the outlet level up to an elevation of 205 m. the elevation of the southern inlet/alternate spillway. The actual water level may have been considerably higher.

**The Perdido capacity was computed assuming the outlet reconstructed so as to hold a meter's depth of water within.

***The Hidden capacity was computed from the basin contours as they are, without taking into account the greater original depth as shown by excavation.

REFERENCES

Berlin, H.

1951 El Templo de las Inscripciones VI de Tikal. *Antropologia e Historia de Guatemala*, Vol. 3, No. 1, pp. 33–54. Guatemala.

1953 A New Temple at Tikal. *Archaeology*, Vol. 5, No. 2, pp. 82–85. New York.

Bullard, W. R. Jr.

1954 Boundary Walls and House Lots at Mayapan. *Carnegie Institution of Washington, Department of Archaeology Current Report*, No. 13. Washington.

Fisk, H. W.

1927 Magnetic Results 1921–1926. *Carnegie Institution of Washington, Publication* 175, Vol. 6. Washington.

Jones, M. R.

1952 Map of the Ruins of Mayapan, Yucatan, Mexico. *Carnegie Institution of Washington, Department of Archaeology Current Report No. 1*. Washington.

Lundell, C. L.

1938 Plants Probably Utilized by the Old Empire Maya of Peten and Adjacent Lowlands. *Papers of the Michigan Academy of Science, Arts, and Letters*, Vol. XXIV, Part I. Ann Arbor.

Maler, T.

1911 Explorations in the Department of Peten, Guatemala–Tikal. *Memoirs, Peabody Museum, Harvard University*, Vol. 5, No. 1. Cambridge.

Maudslay, A. P.

1889–1902 Archaeology. *Biologia Centrali-Americana*, 5 vols. London.

Morley, S. G.

1937–38 The Inscriptions of Peten. *Carnegie Institution of Washington, Publication* 437, 5 vols. Washington.

Ricketson, O. G. Jr.

1928 Notes on Two Maya Astronomical Observations. *American Anthropologist*, n. s., Vol. 30, No. 3, pp. 434–444. Menasha.

1937 Uaxactun, Guatemala, Group E Excavations–1926–1931. *Carnegie Institution of Washington, Publication* 447. Washington.

Ruppert, K., and J. H. Dennison Jr.

1943 Archaeological Reconnaissance in Campeche, Quintana Roo, and Peten. *Carnegie Institution of Washington, Publication* 543. Washington.

Satterthwaite, L.
1943 Piedras Negras Archaeology: Architecture. *University Museum*. Philadelphia.

Shook, E. M.
1951 Investigaciones Arqueologicas en las Ruinas de Tikal, Departemento de El Peten, Guatemala. *Antropologia e Historia de Guatemala*, Vol. 3, No. 1, pp. 9–32. Guatemala.

Tozzer, A. M.
1911 A Preliminary Study of the Prehistoric Ruins of Tikal, Guatemala. *Memoirs, Peabody Museum, Harvard University*, Vol. 5, No. 2. Cambridge.

Tikal Reports: *Museum Monographs. The University Museum.* Philadelphia.
No. 1 Field Director's Report: The 1956 and 1957 Seasons. Edwin M. Shook. In "Tikal Reports Nos. 1–4." 1958.
No. 5 Tikal: Numeration, Terminology, and Objectives. Edwin M. Shook and William R. Coe. In "Tikal Reports Nos. 5–10." 1961.
No. 12 Excavations in the Great Plaza and North Terrace (in preparation).

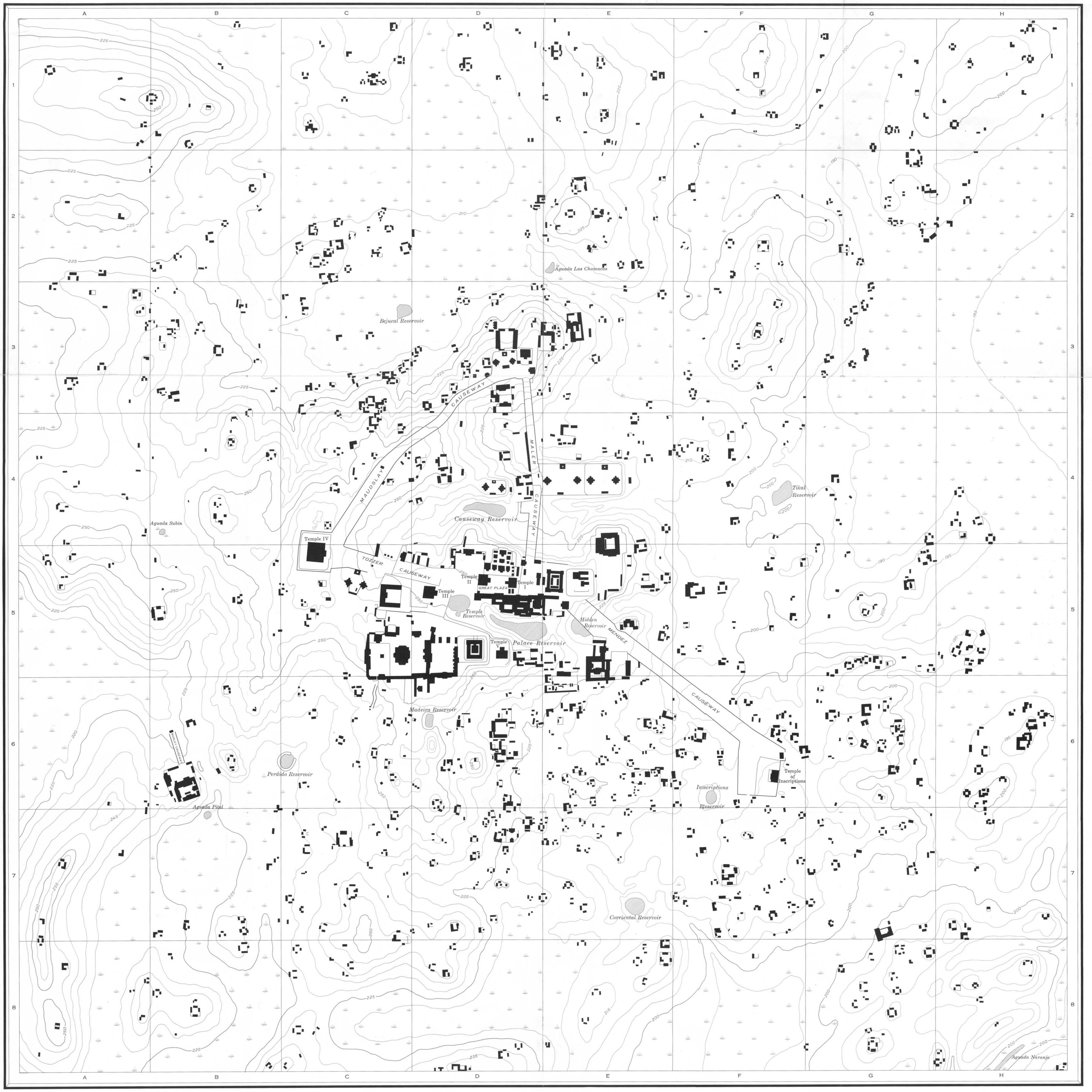
RUINS OF TIKAL

UNIVERSITY OF PENNSYLVANIA

UNIVERSITY MUSEUM
FROELICH RAINEY DIRECTOR

TIKAL PROJECT
EDWIN M. SHOOK DIRECTOR

DEPARTMENT OF PETEN
GUATEMALA, C. A.



Prepared by H. M. Gregersen from larger scale surveys 1;2000, 1957–1960, and from the survey of perimeter squares 1 A–1H; 2A–7A; 2H–5H and 8A–8F by H. M. Gregersen, and 8G; 6H–8H by R. F. Carr

Geographic coordinates. Astronomic observation at Great Temple I

Latitude 17°33.3″N Longitude 89°35.5″W

MAP SYMBOLS

Ruins

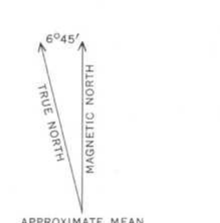
Ancient water sources

Seasonal marsh

Index contour 200

Intermediate contour

Depression contour



APPROXIMATE MEAN DECLINATION 1960

SCALE 1:6250

100 50 0 100 200 300 400 500 600 700 800 900 1000 METERS

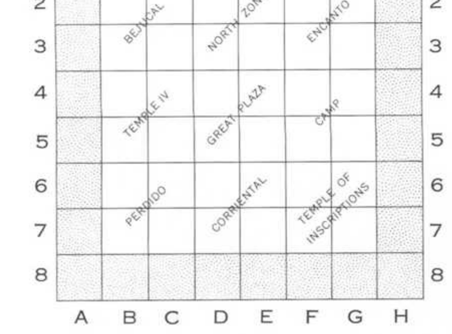
1000 0 1000 2000 3000 FEET

CONTOUR INTERVAL 5 METERS

DATUM: BENCHMARK AT TIKAL PROJECT CAMP

(SQUARE 4F) ASSUMED 200 METERS ABOVE SEA LEVEL

INDEX TO LARGE SCALE SURVEYS



Mapped by planetable methods

Named quadrangle areas mapped

Mapped by reconnaissance methods.

Position of all features approximate

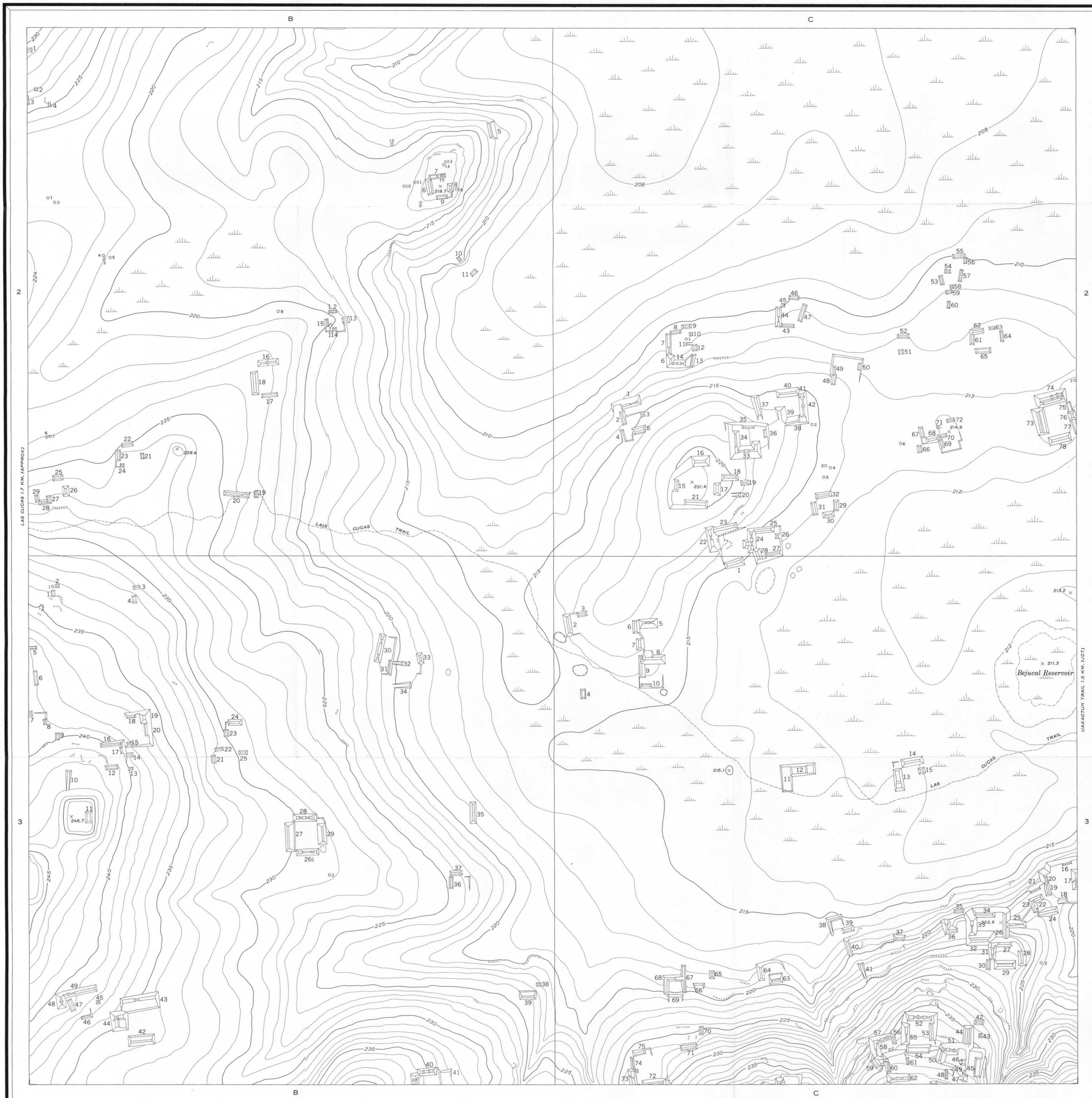
UNIVERSITY OF PENNSYLVANIA

UNIVERSITY MUSEUM
FROELICH RAINEY DIRECTOR

THE RUINS OF TIKAL
DEPARTMENT OF PETEN
GUATEMALA, C. A.

TIKAL PROJECT
EDWIN M. SHOOK DIRECTOR

BEJUCAL QUADRANGLE



Mapped by H. M. Gregersen
1960
Geographic coordinates. Astronomic observation at Great Temple I
Latitude 17°33.3' N. Longitude 89°35.5' W.

MAP SYMBOLS

Modern motor road
Modern trail
Modern building
Ruins (symbolized)
Ruins (exposed walls)
Ruins of 19th Century Village

Stela
Carved
Plain
Altar
Carved
Plain
Chultun
Benchmark
Spot elevation ×214.3

Index: contour
Intermediate contour
Depression contours
Ancient quarry
Bajo (seasonal swamp)
Intermittent reservoir

Gregersen

SCALE 1:2000

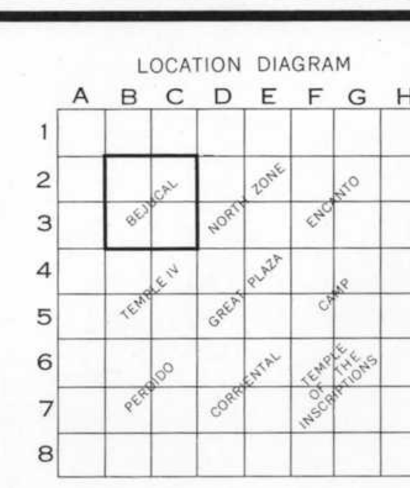
100 METERS 0 100 200 300 METERS

200 FEET 0 200 400 600 800 1000 FEET

CONTOUR INTERVAL 1 METER
DATUM: BENCHMARK AT TIKAL PROJECT CAMP
ASSUMED 200 METERS ABOVE SEA LEVEL

6°45'
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1960

LOCATION DIAGRAM



BEJUCAL
1960

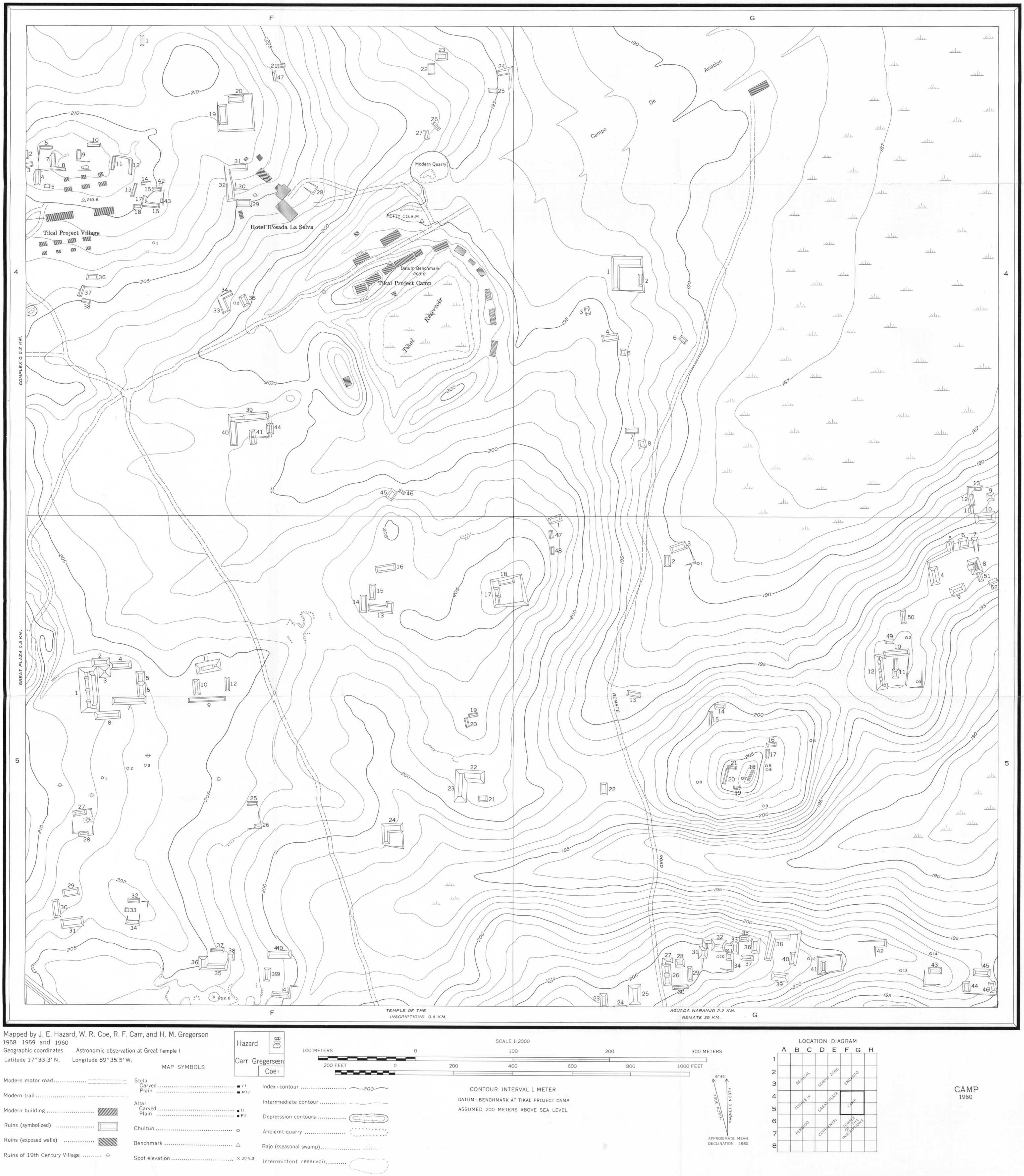
THE RUINS OF TIKAL
DEPARTMENT OF PETEN
GUATEMALA, C. A.

UNIVERSITY OF PENNSYLVANIA

UNIVERSITY MUSEUM
FROELICH RAINEY DIRECTOR

TIKAL PROJECT
EDWIN M. SHOOK DIRECTOR

CAMP QUADRANGLE



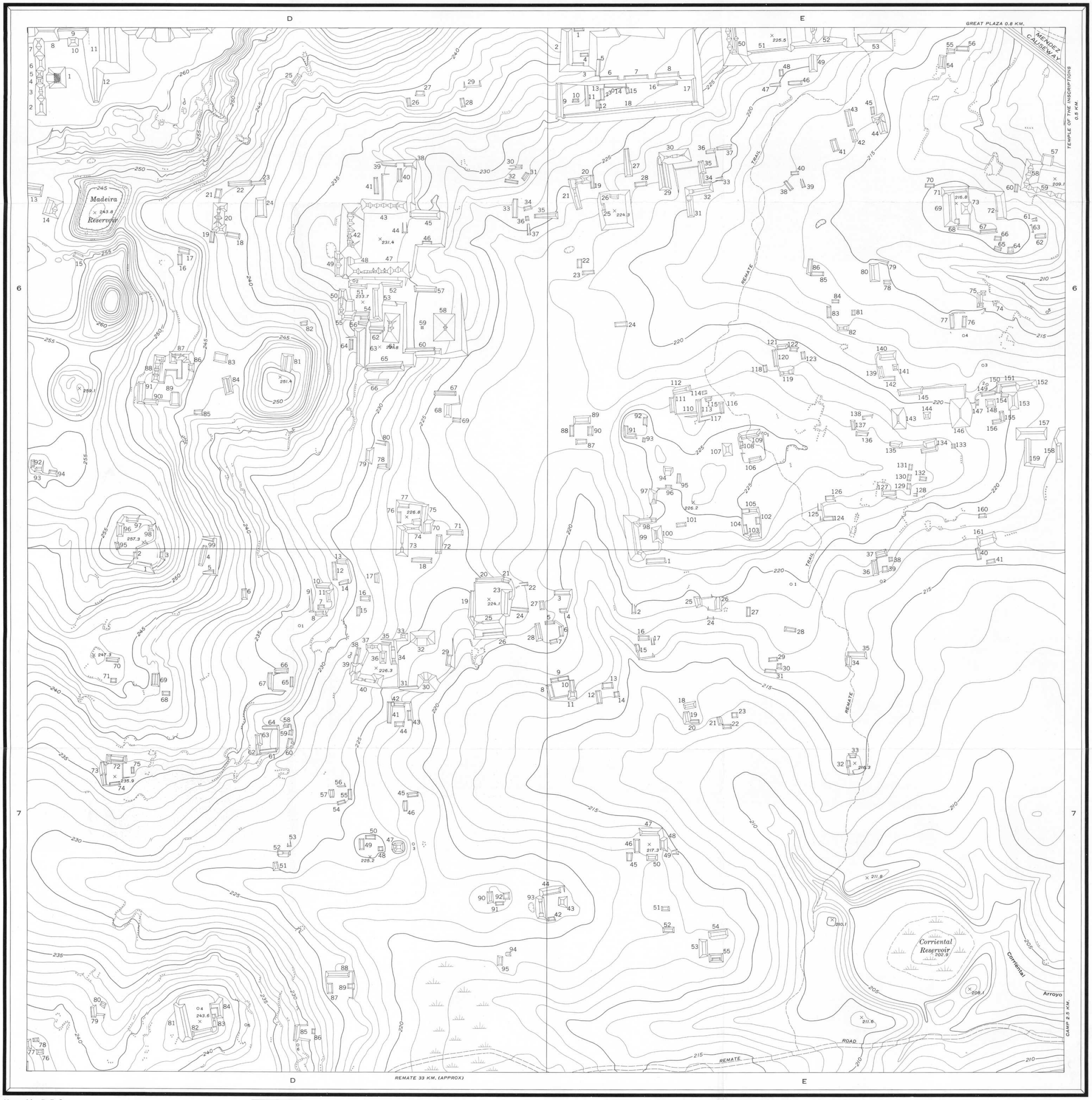
UNIVERSITY OF PENNSYLVANIA

UNIVERSITY MUSEUM
FROELICH RAINEY DIRECTOR

THE RUINS OF TIKAL
DEPARTMENT OF PETEN
GUATEMALA, C. A.

TIKAL PROJECT
EDWIN M. SHOOK DIRECTOR

CORRIENTAL QUADRANGLE



Mapped by R. F. Carr
1960
Geographic coordinates. Astronomic observation at Great Temple I
Latitude 17°33.3' N. Longitude 89°35.5' W.

MAP SYMBOLS

Modern motor road
Modern trail
Modern building
Ruins (symbolized)
Ruins (exposed walls)
Ruins of 19th Century Village
Stela Carved ... Plain
Altar Carved ... Plain
Chultun
Benchmark
Spot elevation × 214.3
Index contour 200
Intermediate contour
Depression contours
Ancient quarry
Bajo (seasonal swamp)
Intermittent reservoir

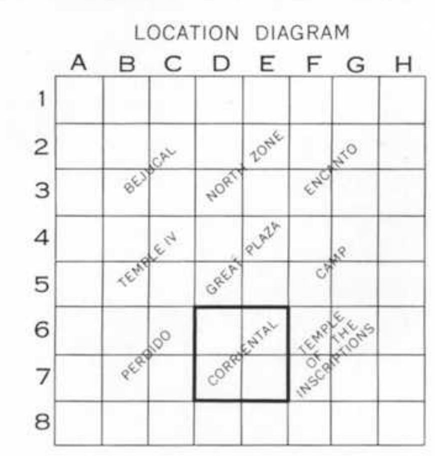
Carr

SCALE 1:2000
100 METERS 0 100 200 300 METERS
200 FEET 0 200 400 600 800 1000 FEET

CONTOUR INTERVAL 1 METER
DATUM: BENCHMARK AT TIKAL PROJECT CAMP
ASSUMED 200 METERS ABOVE SEA LEVEL

6°45'
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1960

LOCATION DIAGRAM



CORRIENTAL
1960

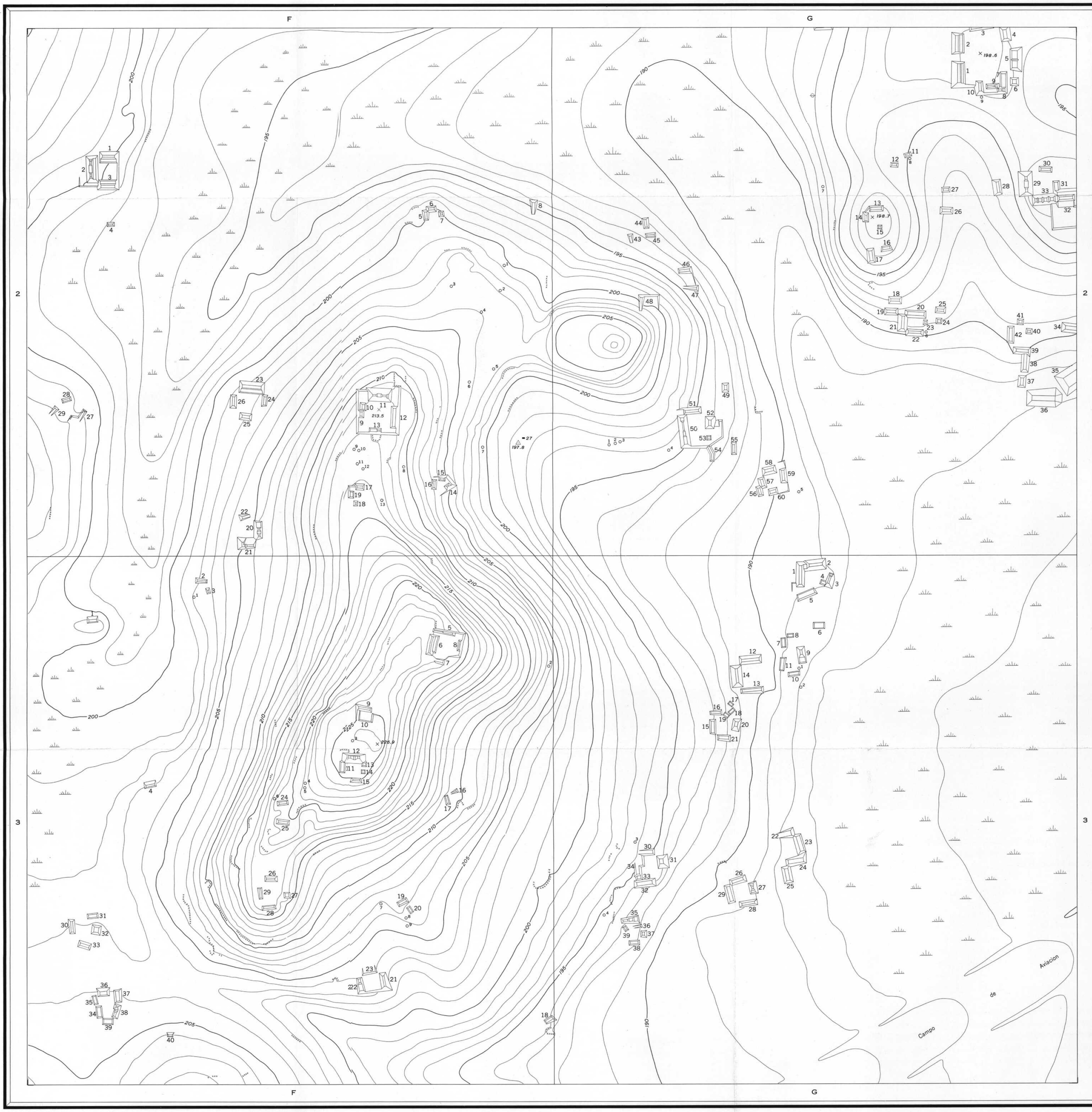
UNIVERSITY OF PENNSYLVANIA

UNIVERSITY MUSEUM
FROELICH RAINEY DIRECTOR

THE RUINS OF TIKAL
DEPARTMENT OF PETEN
GUATEMALA, C. A.

TIKAL PROJECT
EDWIN M. SHOOK DIRECTOR

ENCANTO QUADRANGLE



Mapped by H. M. Gregersen and E. Martinez E.
1960
Geographic coordinates. Astronomic observation at Great Temple I
Latitude 17°33.3' N. Longitude 89°35.5' W.

Gregersen
Martinez

SCALE 1:2000

100 METERS 0 100 200 300 METERS

2100 FEET 0 200 400 600 800 1000 FEET

CONTOUR INTERVAL 1 METER
DATUM: BENCHMARK AT TIKAL PROJECT CAMP
ASSUMED 200 METERS ABOVE SEA LEVEL

6°45'
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1960

MAP SYMBOLS

Modern motor road
Modern trail
Modern building
Ruins (symbolized)
Ruins (exposed walls)
Ruins of 19th Century Village

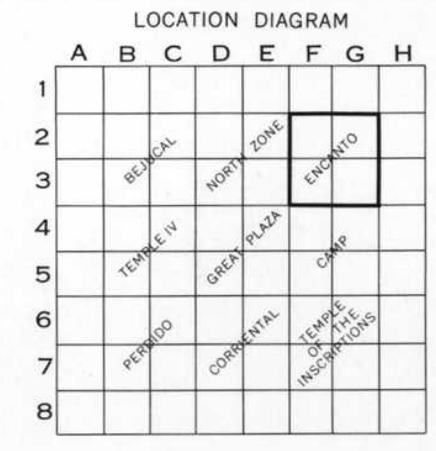
Stela
Carved ■ 11
Plain ■ P11

Altar
Carved ● 11
Plain ● P11

Chultun ○
Benchmark △
Spot elevation × 214.3

Index contour 200
Intermediate contour
Depression contours
Ancient quarry
Bajo (seasonal swamp)
Intermittent reservoir

LOCATION DIAGRAM



ENCANTO
1960

UNIVERSITY OF PENNSYLVANIA

UNIVERSITY MUSEUM
FROELICH RAINEY DIRECTOR

THE RUINS OF TIKAL
DEPARTMENT OF PETEN
GUATEMALA, C. A.

TIKAL PROJECT
EDWIN M. SHOOK DIRECTOR

GREAT PLAZA QUADRANGLE

Mapped by J. E. Hazard, N. LeVine, and R. F. Carr
1957 1958 and 1959
Geographic coordinates. Astronomic observation at Great Temple I
Latitude 17°33.3'N Longitude 89°35.5'W

Carr	LeVine
	Hazard

SCALE 1:2000
100 METERS 0 100 200 300 METERS
200 FEET 0 200 400 600 800 1000 FEET

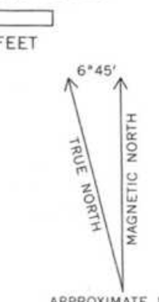
MAP SYMBOLS

Modern motor road
Modern trail
Modern building
Ruins (symbolized)
Ruins (exposed walls)
Ruins of 19th Century Village

Stela
Carved ● 11
Plain ■ P11
Altar
Carved ● 11
Plain ● P11
Chultun ○
Benchmark △
Spot elevation 214.3

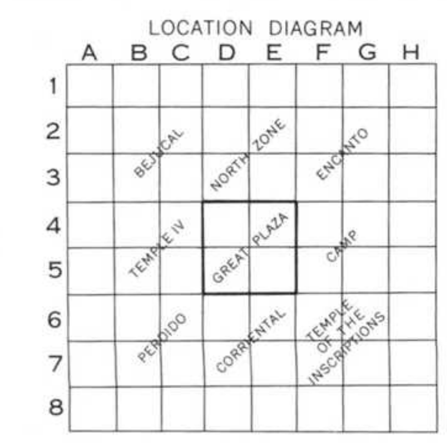
Index contour 250
Intermediate contour
Depression contours
Ancient quarry
Bajo (seasonal swamp)
Intermittent reservoir

CONTOUR INTERVAL 1 METER
DATUM: BENCHMARK AT TIKAL PROJECT CAMP
ASSUMED 200 METERS ABOVE SEA LEVEL



APPROXIMATE MEAN DECLINATION 1960

LOCATION DIAGRAM



GREAT PLAZA
1959

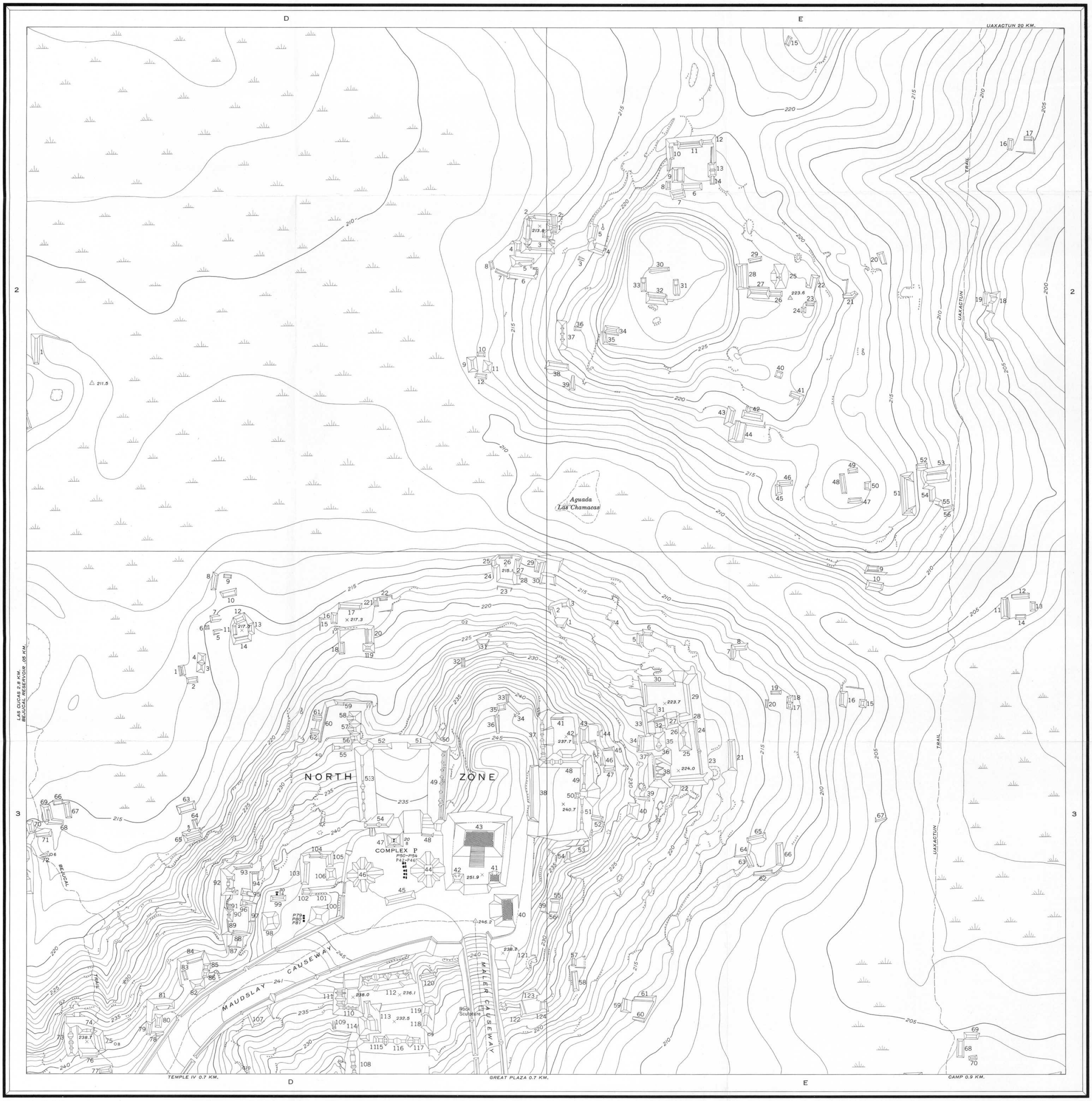
UNIVERSITY OF PENNSYLVANIA

UNIVERSITY MUSEUM
FROELICH RAINEY DIRECTOR

THE RUINS OF TIKAL
DEPARTMENT OF PETEN
GUATEMALA, C. A.

TIKAL PROJECT
EDWIN M. SHOOK DIRECTOR

NORTH ZONE
QUADRANGLE



Mapped by R. F. Carr
1959 1960
Geographic coordinates. Astronomic observation at Great Temple I
Latitude 17°33.3′ N. Longitude 89°35.5′ W.

Carr

MAP SYMBOLS

Modern motor road
Modern trail
Modern building
Ruins (symbolized)
Ruins (exposed walls)
Ruins of 19th Century Village

Stela
Carved
Plain
Altar
Carved
Plain
Chultun
Benchmark
Spot elevation × 214.3

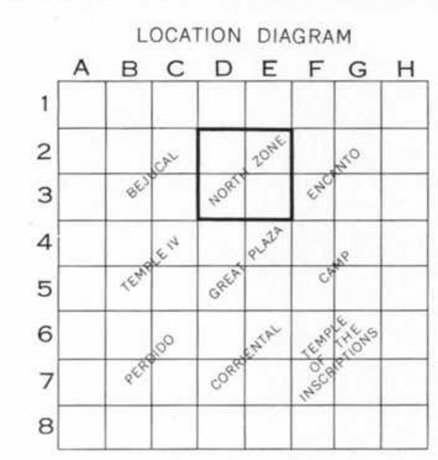
Index contour 200
Intermediate contour
Depression contours
Ancient quarry
Bajo (seasonal swamp)
Intermittent reservoir

SCALE 1:2000
100 METERS 0 100 200 300 METERS
200 FEET 0 200 400 600 800 1000 FEET

CONTOUR INTERVAL 1 METER
DATUM: BENCHMARK AT TIKAL PROJECT CAMP
ASSUMED 200 METERS ABOVE SEA LEVEL

6°45′
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1960

LOCATION DIAGRAM



NORTH ZONE
1960

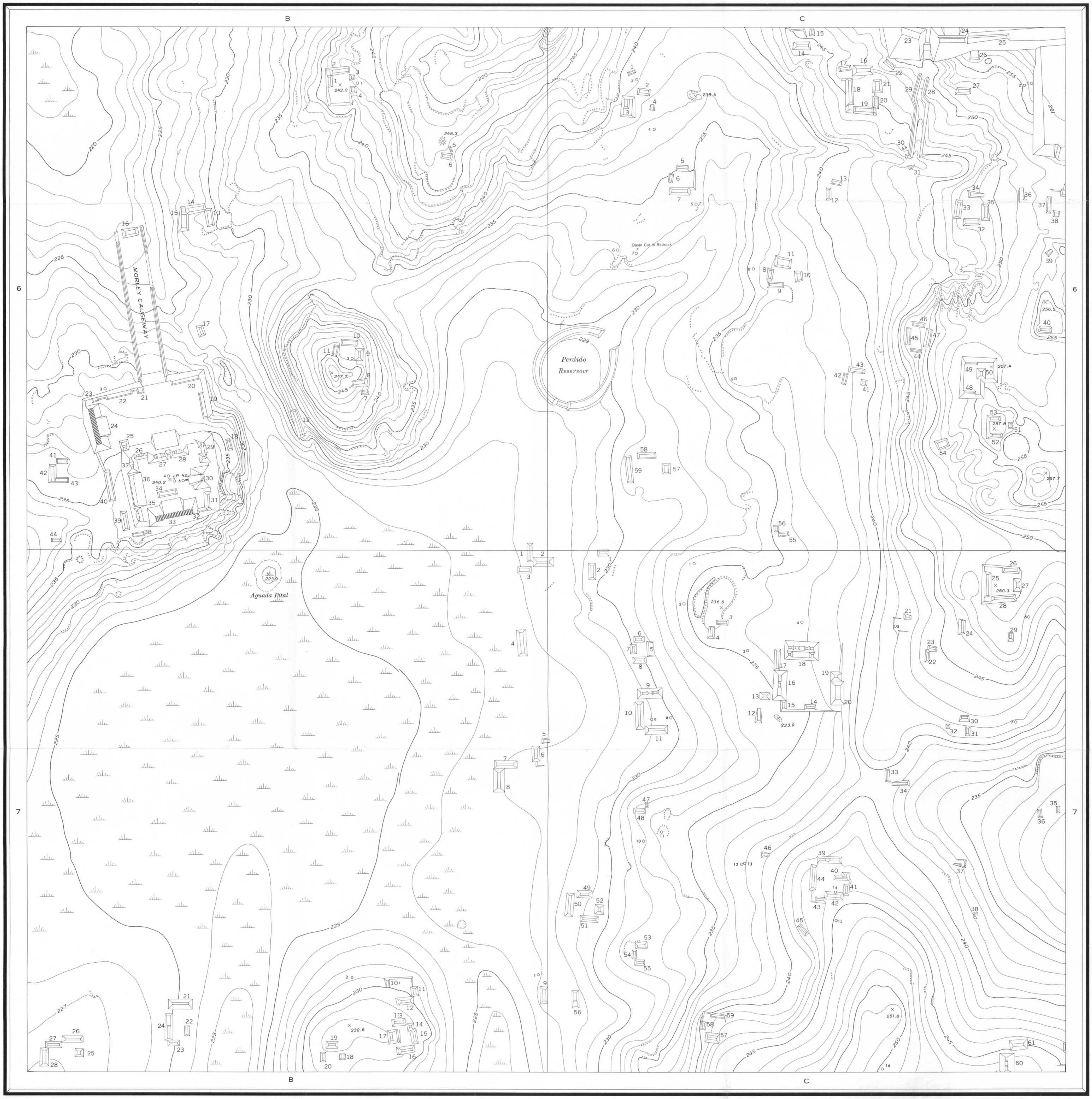
UNIVERSITY OF PENNSYLVANIA

UNIVERSITY MUSEUM
FROELICH RAINEY DIRECTOR

THE RUINS OF TIKAL
DEPARTMENT OF PETEN
GUATEMALA, C. A.

TIKAL PROJECT
EDWIN M. SHOOK DIRECTOR

PERDIDO QUADRANGLE



Mapped by H. M. Gregersen and E. Martinez E.
1960
Geographic coordinates. Astronomic observation at Great Temple I
Latitude 17°33.3' N. Longitude 89°35.5' W.

Martinez
Gregersen

MAP SYMBOLS

Modern motor road
Modern trail
Modern building
Ruins (symbolized)
Ruins (exposed walls)
Ruins of 19th Century Village

Stela
Carved
Plain
Altar
Carved
Plain
Chultun
Benchmark
Spot elevation

Index contour
Intermediate contour
Depression contours
Ancient quarry
Bajo (seasonal swamp)
Intermittent reservoir

SCALE 1:2000
100 METERS 0 100 200 300 METERS
200 FEET 0 200 400 600 800 1000 FEET

CONTOUR INTERVAL 1 METER
DATUM: BENCHMARK AT TIKAL PROJECT CAMP
ASSUMED 200 METERS ABOVE SEA LEVEL

6°45'
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1960

LOCATION DIAGRAM

PERDIDO
1960

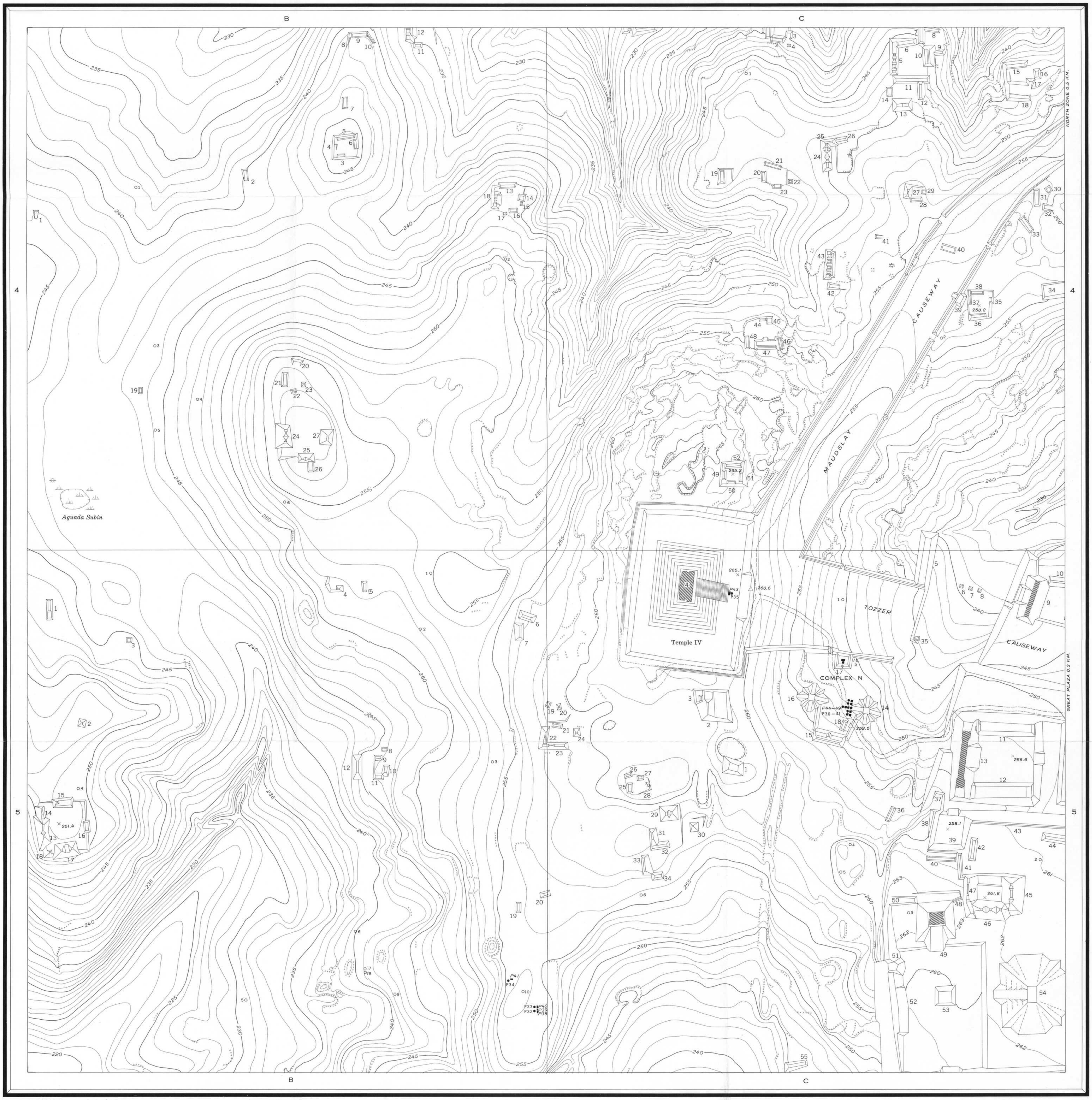
UNIVERSITY OF PENNSYLVANIA

UNIVERSITY MUSEUM
FROELICH RAINEY DIRECTOR

THE RUINS OF TIKAL
DEPARTMENT OF PETEN
GUATEMALA, C. A.

TIKAL PROJECT
EDWIN M. SHOOK DIRECTOR

TEMPLE IV QUADRANGLE



Mapped by R. F. Carr and R. S. Wurman
1958 1959
Geographic coordinates. Astronomic observation at Great Temple I
Latitude 17°33.3' N. Longitude 89°35.5' W.

Carr
Wurman

SCALE 1:2000

100 METERS 0 100 200 300 METERS

200 FEET 0 200 400 600 800 1000 FEET

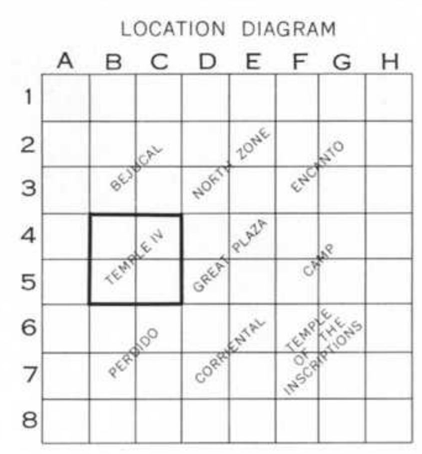
CONTOUR INTERVAL 1 METER

DATUM: BENCHMARK AT TIKAL PROJECT CAMP

ASSUMED 200 METERS ABOVE SEA LEVEL

TRUE NORTH
MAGNETIC NORTH
6°45'
APPROXIMATE MEAN DECLINATION 1960

LOCATION DIAGRAM



TEMPLE IV
1959

MAP SYMBOLS

Modern motor road
Modern trail
Modern building
Ruins (symbolized)
Ruins (exposed walls)
Ruins of 19th Century Village
Stela
Carved
Plain
Altar
Carved
Plain
Chultun
Benchmark
Spot elevation 214.3
Index contour 200
Intermediate contour
Depression contours
Ancient quarry
Bajo (seasonal swamp)
Intermittent reservoir

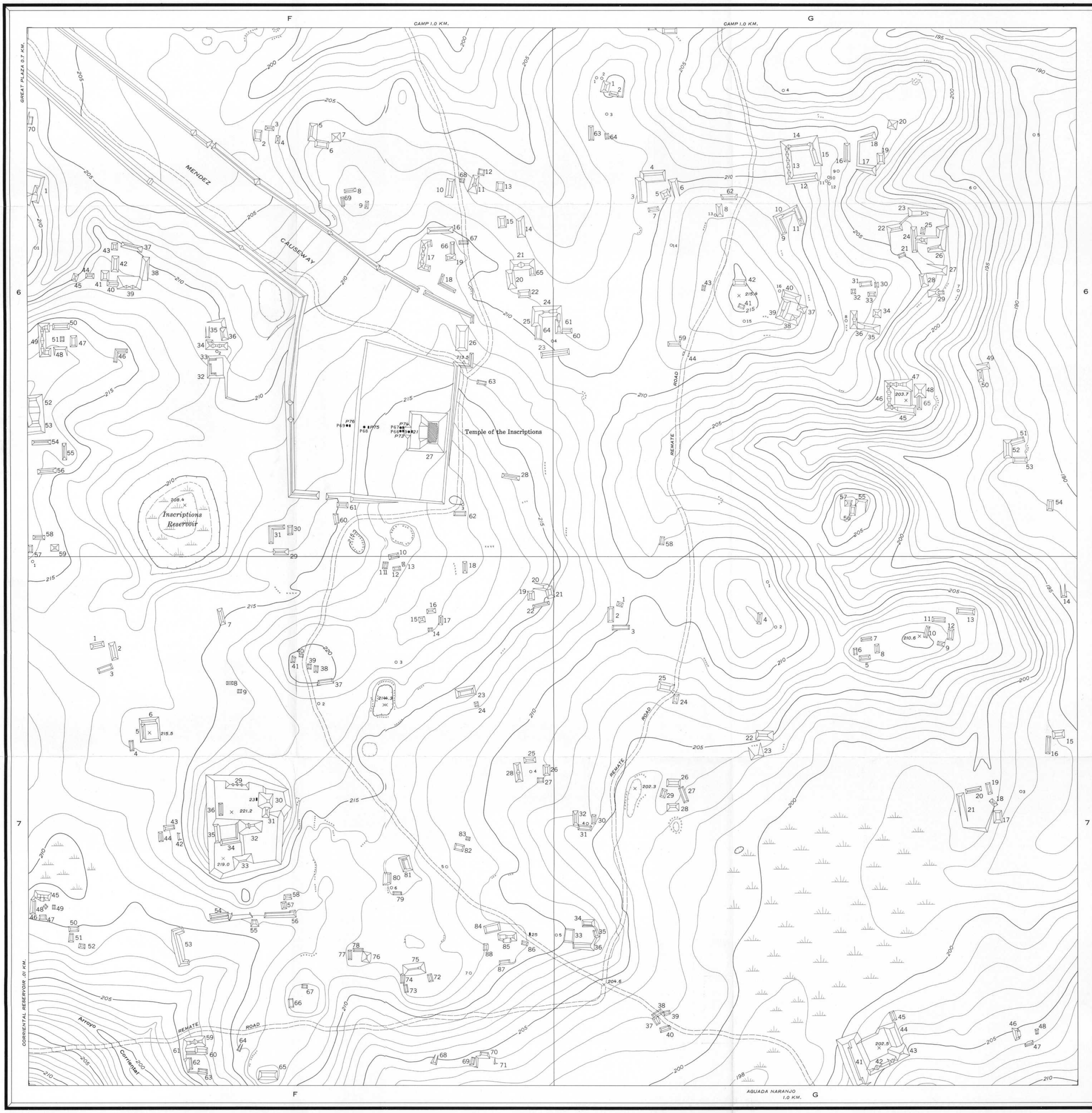
UNIVERSITY OF PENNSYLVANIA

UNIVERSITY MUSEUM
FROELICH RAINEY DIRECTOR

THE RUINS OF TIKAL
DEPARTMENT OF PETEN
GUATEMALA, C. A.

TIKAL PROJECT
EDWIN M. SHOOK DIRECTOR

TEMPLE OF THE INSCRIPTIONS QUADRANGLE



Mapped by J. E. Hazard, N. LeVine, and R. F. Carr
1958 and 1960
Geographic coordinates. Astronomic observation at Great Temple I
Latitude 17°33.3' N. Longitude 89°35.5' W.

Hazard
LeVine
Carr

MAP SYMBOLS

Modern motor road
Modern trail
Modern building
Ruins (symbolized)
Ruins (exposed walls)
Ruins of 19th Century Village

Stela
Carved
Plain
Altar
Carved
Plain
Chultun
Benchmark
Spot elevation

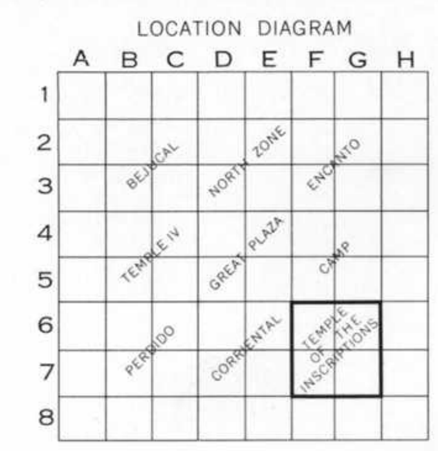
Index contour
Intermediate contour
Depression contours
Ancient quarry
Bajo (seasonal swamp)
Intermittent reservoir

SCALE 1:2000
100 METERS 0 100 200 300 METERS
200 FEET 0 200 400 600 800 1000 FEET

CONTOUR INTERVAL 1 METER
DATUM: BENCHMARK AT TIKAL PROJECT CAMP
ASSUMED 200 METERS ABOVE SEA LEVEL

6°45'
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1960

LOCATION DIAGRAM



TEMPLE OF THE INSCRIPTIONS
1960